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VOCATIONAL TRAINING FOR ADULTS IN THE NETHERLANDS.

NETHERLANDS MINISTRY OF SOC. AFF. AND PUB. HEALTH

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THE NETHERLANDS GOVERNMENT HAS TAKEN OVER ADULT VOCATIONAL TRAINING TO MAKE UP FOR THE ARREARS IN VOCATIONAL TRAINING CAUSED DURING WORLD WAR II AND TO ACHIEVE A SWITCHOVER OF WORKERS FROM TRADES WITH A LABOR SURPLUS TO TRADES WITH A LABOR SHORTAGE. IT HAS ESTABLISHED A NUMBER OF VOCATIONAL TRAINING CENTERS FOR THE INITIAL TRAINING OF PERSONS FOR A CERTAIN OCCUPATION, THE RETRAINING OF PERSONS WHO CAN NO LONGER PRACTICE IN A CERTAIN OCCUPATION, AND THE ADDITIONAL TRAINING OR UPDATING OF PERSONS WHOSE PREVIOUS TRAINING HAS BECOME INSUFFICIENT THROUGH TECHNOLOGICAL DEVELOPMENTS. INFORMATION REGARDING THESE VOCATIONAL TRAINING CENTERS IS PRESENTED IN CHAPTERS TITLED--(1) GENERAL POLICY IN RESPECT OF THE TRAINING OF ADULTS AT THE GOVERNMENT VOCATIONAL TRAINING CENTERS, (2) THE METHODS OF TRAINING, (3) THE ORGANIZATION, (4) THE STAFF WORK, (5) CARRYING OUT THE TRAINING, (6) COOPERATION BETWEEN THE GOVERNMENT AND TRADE AND INDUSTRY, AND (7) CONSULTATION WITH OTHER COUNTRIES AND THE EXCHANGE OF INFORMATION. (HC)

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State Labour Office

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VT002909

VOCATIONAL TRAINING

FOR ADULTS

IN THE NETHERLANDS

April 1964

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INTRODUCTION

After the Second World War the Government has taken in hand the matter of the vocational training of adults in order to:

(a) make up for the arrears in vocational training caused during the war;
(b) achieve by means of training a switch-over of workers from trades with a structural labour-surplus to trades with a labour-shortage.

The initial misgivings of various employers as regards the government vocational training-centres with their characteristic individual and accelerated training have gradually been overcome. The government training-centres for adults have made a name for themselves. Vocational training in this country is now inconceivable without these centres any longer.

In fact organized industry is appealing to the Government more and more to counterbalance shortage of skilled workers by providing vocational training for adults. It should be remembered, however, that a course for a specific trade is only set up if the courses provided under the Technical Training Act prove to be inadequate.

The employers who - partly on account of the favourable economic situation - decided to employ adults, who had completed their training, experienced that these workers usually develop into good craftsmen after a comparatively short "breaking-in" period.

The older worker's ability to adapt himself quickly to conditions in the new industry also makes it possible to reduce to a minimum the difficulties of fixing his wages. The young apprentice who takes up employment on leaving the junior technical school can be paid in accordance with one of the scales of wages for young people which have been incorporated in the collective labour agreements of nearly all branches of industry. These wages have been determined according to the difference between the performance of youngsters and of adults. Adults who have completed their course cannot be paid according to the scales of wages for youngsters. In the initial period the wages of these adults are not quite in accordance with the value of their performance, even though they do not receive the wage of a skilled worker.

Therefore, the shorter the "breaking-in" period, the sooner the equilibrium between wages and performance is attained. Experience has shown, that a man being trained later in life regards the training as his last chance to attain a better economic and social status and, therefore, makes a greater mental and physical effort than his younger colleague and is sooner able to compete with experienced workers.

Up to December 1st, 1963, over 60,000 adults had completed a course at the government training-centres. Investigations have shown that about 92 % of them succeeded in a job in accordance with the training they had received. This favourable result was reached by careful selection before training, continuous selection during the training and the constant adaptation of the courses to the changing demands and techniques of

industry. The growing willingness of employers to employ adults on completion of their training was of course a contributory factor.

It appeared that about 8 % of the trainees one year after completing their training did not or no longer work in the trade for which they had been trained. This percentage of losses must be ascribed partly to lack of a suitable vacancy at the critical moment and partly to the fact that some trainees inevitably slip through the meshes of the selection-net.
For others the adaptation to an entirely new trade seemed to be too difficult.

The high percentage of adults who after completion of a vocational training course find permanent employment in the trade for which they have been trained proves that the vocational training of adults is based on sound economic and social principles.

Vocational training in the centres may be distinguished into:

Training - of persons who for the first time are trained for a certain occupation -

Retraining - of persons who after a previous training for a certain occupation can no longer practise this occupation, e.g. through a decrease in employment opportunities or on account of a physical handicap -

and

Additional training (up-dating) - of persons whose previous training has become insufficient, e.g. through the technological developments.

Chapter I. GENERAL POLICY IN RESPECT OF THE TRAINING OF ADULTS AT THE GOVERNMENT VOCATIONAL TRAINING CENTRES

§ 1 THE SIGNIFICANCE OF THE VOCATIONAL TRAINING OF ADULTS WITHIN THE FRAMEWORK OF THE LABOUR MARKET POLICY; THE CHOICE OF THE LOCATION OF THE VOCATIONAL TRAINING CENTRES

After the second world war vocational training centres have been set up principally in areas of large scale structural unemployment. This enabled the unemployed skilled workers in these areas to maintain their standard of professional skill as well as providing the unskilled with an opportunity of being trained for a trade. It appeared, however, difficult to find employment for all men after their training, owing to the lack of sufficient vacancies in industry and their own lack of mobility.

When vocational training centres were set up in the years that followed, attention was therefore paid not only to the training needs of the individual (by locating these centres in areas of structural unemployment), but also to the needs of the industry (by locating them in areas with a structural labour shortage).

In this way attention is being paid to the economic aspect of the vocational training of adults as well as to the social aspect.

The advance of mechanization - in agriculture for example - and the regular changes in the pattern of production of the expanding industries led and are still leading to the continual laying-off of certain categories of workers and an increased demand for specialized craftsmen. In counteracting the resulting lack of balance between supply and demand, the vocational training of adults not only results in diminishing unemployment, but also contributes to the stepping-up of production.

On the basis of data collected by the State Labour Office about the development of the labour-market situation, it is decided periodically whether the establishment or maintenance of a training-centre is justified. In this way the number of centres and their distribution over the country are kept in line with requirements as closely as possible.

The decision to maintain or establish a centre is only taken if it can reasonably be expected that the number of trainees will be as follows:

about 74 trainees for a centre providing courses of training for the building and metal trades;
about 45 trainees for a centre providing courses of training for the metal trade only and
about 40 trainees for a centre providing courses of training for the building trade only.

These minimum numbers are essential, if efficient use is to be made of instructors, educational outfit and machinery equipment.

In order to reduce a trainee's travelling time to a minimum, the location of a centre is chosen as central as possible in relation to the area which it is intended to serve. The

size of this area is determined by the density of population and the expected number of trainees.

The vocational training centre at Terneuzen provides courses for the metal-trade only; in all other centres vocational training is given for the metal-trades as well as for the building trades.

The following map shows where the vocational training centres are situated.

ILLUSTRATION I

LOCATIONS OF VOCATIONAL TRAINING CENTRES FOR ADULTS

Lw	=	Leeuwarden	Ap	=	Apeldoorn	Ud	=	Uden
Gr	=	Groningen	Ldn	=	Leiden	Bd	=	Breda
Em	=	Emmen	s Gr	=	's Gravenhage	Mid	=	Middelburg
Hn	=	Hoorn	Ut	=	Utrecht	Boz	=	Bergen op Zoom
Zw	=	Zwolle	Rt	=	Rotterdam	Ehv	=	Eindhoven
Hlm	=	Haarlem	Dt	=	Doetinchem	Vl	=	Venlo
Asd	=	Amsterdam	Nm	=	Nijmegen	Tn	=	Terneuzen
Al	=	Almelo	s Ht	=	's Hertogenbosch	Hrl	=	Heerlen

Alk = Alkmaar is to replace the centres at Hoorn and Haarlem

§ 2 THE TRAINING OF BOTH EMPLOYED AND UNEMPLOYED ADULTS

It may be taken as a starting-point that the necessary vocational training of employees, being one of the consequences of structural changes, is primarily a responsibility of the branch of industry concerned.

However, small firms and many medium-sized ones often lack either a methodical training programme or the means of carrying it out efficiently, or even both.

Larger firms, even if they decided to provide vocational training, will as a rule:
- only provide such training as is sufficient to meet their own requirements. This will mostly be rather restricted and bind the trainee to a particular firm;
- train no more men than are needed;
- train only those who may give the greatest profitability in the long run; in other words the younger men; and
- place more emphasis on application courses than on training for a new trade, the latter being more expensive.

These points clearly show that government cooperation is indispensable in the vocational training of adults.

In the beginning only unskilled men who were either seeking employment or threatened with unemployment were admitted to the training centres. The Government then pays for:
- the training itself;
- the compensation for loss of earnings, which varies according to the age and social position of the trainee;
- the social provisions and
- the allowances for travelling, board and lodging.

The opinion gradually developed that it is both socially and economically justified to undertake the vocational training of all adults who:
- for some reason have been prevented from following a vocational training or
- in terms of skill are not up to date with technical developments in their trade.

This implies that vocational training should be extended not only to the unskilled adults who are out of work, but also to the unskilled workers and to those who have been trained in the past, but on account of structural conditions have to be retrained to stay at work.

In February, 1963, it was decided also to admit unskilled workers to the vocational training centres. In such cases:
- the cost of the training is borne by the Government, and
- wages, social provisions and allowances for travelling, board and lodging are paid by the employer.

Photograph a

The vocational training centres have a yard where the bricklaying work orders, various orders in carpentry and some work orders for the constructional ironwork fitter are done

§ 3 THE CHOICE OF TRADES TO BE TAUGHT AT A SPECIFIC VOCATIONAL TRAINING CENTRE

Choosing the trades, for which courses are to be provided at a specific vocational training centre, both national and regional requirements are taken into account.

For trades with a nation-wide high demand, as for instance carpenting, bricklaying and metal-fitting, courses are provided in nearly all centres. Courses in trades with a nation-wide distribution but with a relatively small demand are only being given in a few centres whose geographical position makes them most suitable. Thus, the course for stonecutters is given only at the centre at Utrecht. The six centres with an electrician's course are distributed over the country.

The course in ship-plating, because of its predominantly local character, can only be followed at the centre of Rotterdam.

Courses at present exist in the following trades:

bricklayer
plasterer
carpenter
concrete-carpenter (-form builder)
stonecutter
fascine-worker
dike-builder
street-paver
lathe-worker
maintenance-fitter
machine-fitter
precision-fitter
constructional ironwork-fitter
ship-plater
sheet metal worker
gas welder
electric welder
electrician's mate
motorcar-repairman
plumber
industrial gas- and waterfitter.

Photograph b

Trainees being trained as fascine workers for the Delta project

§ 4 THE APTITUDE TEST OF THE CANDIDATE

Before a prospective trainee is admitted to a course, he has to submit himself to an aptitude test. This test has the following aims:

- it prevents candidates from being admitted who lack either the necessary ability or the right mental approach, thus ensuring that training has not to be broken off prematurely;
- the trainee who himself often has little idea of the possibilities available to him, may be advised on the trade for which he is most suited;
- during the training and the subsequent placement, the particular qualities which have emerged from the test, can be taken into account;
- it ensures that training facilities are used as efficiently as possible - no places being occupied by men who cannot keep up with the course, and the whole process of training thereby being speeded up.

The aptitude test can be taken at thirty employment offices distributed over the country. These offices have at their disposal some series of tests specially attuned to the vocational training of adults.

During the test it is decided whether the candidate is capable of following a course at one of the training centres and, if so, on which level. To this end the test is meant to give indications about the following qualities:
general intelligence, memory, space perception, geometrical comprehension, mechanical comprehension, workingspeed, concentration, numerical ability, verbal aptitude and power of comprehension.

The management of the vocational training centres consider three factors particularly important, viz.

- the intelligence or, in general terms, the level of the candidate;
- the working-speed of the candidate; the relationship between the quality of the trainee's work and the speed at which he performs it forms the basic criterion by which he is judged during the training;
- the technical ability of the candidate and his potential work performance.

This last factor is decisive for the direction which the candidate should take in order to develop his potentialities as freely as possible.

The candidates take part in a group-test. Those who do not satisfy the minimum requirements are rejected. Those achieving good results are admitted to a training centre without any further test. The remaining part has to submit to an individual-oral-examination, resulting in a vocational-guidance advice.

The oral examination comprises a number of tests which render it possible to appraise the candidate's feeling for materials, hand- and manual dexterity and "hand co-ordination".

As a rule the candidate does not have to wait more than a week before he can take the aptitude test. This and the short time needed to assess the results make it possible to decide a fortnight after his initial application whether or not he shall be admitted.

After the group-test or the individual test, the counsellor makes a report on his findings, placing special emphasis on the level and the ability of the candidate. He hands over this report to the placement-officer or to the director of the vocational training-centre.

§ 5 THE MEDICAL SELECTION OF THE CANDIDATE

The candidate's physical fitness has an important influence on the decision to admit him to a vocational training centre and on the choice of the course to be followed.

The assessment of his physisal fitness has a major bearing on the question as to whether in fact he can reasonably be expected to practise the trade for which he is to be trained, keeping in mind that, occasionally, candidates have to change their trade because of illness or disability.

On the other hand, some trades make extremely heavy physical demands on the candidate. It is, therefore, essential to make sure of his physical fitness before any training is given. To this end the candidate has to fill in a health-declaration giving precise details of his state of health and of any illnesses or accidents which he may have had.

The medical adviser to the State Labour Office in the area where the candidate applied for admission to a vocational training course uses the health declaration to decide what sort of medical examination is desirable.

The following categories of applicants are to be examined by the medical adviser in any case:

- those who are registered as disabled persons on the "placement of the handicapped" section of a District Employment Office;
- those whom the placement officer on the basis of the data available to him cannot confidently consider to be suitable for the trade for which they wish to be trained;
- those who want to be trained for a trade which is physically exerting (constructional-ironwork-fitter, plasterer, street-paver, ship-plater, dyker, fascine-worker);
- those for whom the medical adviser considers it necessary according to the information given in the health-declaration.

All candidates, who on the basis of their own declaration of health are admitted to the course without medical examination, have their eyes and ears tested, if possible before, otherwise shortly after, the beginning of the course. If any defects in sight or hearing are discovered, a decision can be taken in good time as to whether these defects will bar the candidate from taking up specific courses. Making sure about the physical fitness to practise a trade on completion of the training may often prevent difficulties with regard to persons with some kind of handicap.

These difficulties may not relate so much to the training, which can be completed in spite of any such limitations, but may effect the chances of placing a man in employment after training. When the trainee has completed his training, it may be necessary to submit him to another medical examination. This enables the placement officer to make the necessary provisions to find a suitable job for him. It may, for example, be possible to train a man as a welder, even though he lacks the full use of one arm; but the possibility of finding him suitable placement as a welder must be carefully explored, in order to find him a welder's job in which his disability will not be a hindrance.

The same procedure is followed in respect of disabled trainees. It may be that certain elements of their training or the conditions under which this training has to be carried out are considered to be detrimental to these persons. In these cases the physician in consultation with the director of the training centre tries to find a solution in order to ensure that the course comes up to the highest possible requirements, the interests of the disabled person at the same time being taken into account.

§ 6 THE PROGRESS-SHEET

The progress-sheet (see illustration II, pages 20 and 21), one copy of which always accompanies the trainee, has been designed to give a picture of the situation at any particular time with regard to the selection, training and any subsequent follow-up.

When an applicant for vocational training reports to the employment-office, the placement officer gives a brief survey of his occupational background on the progress-sheet. The trade for which the candidate wishes to be trained is also mentioned. This preference of the trainee is taken into account to the greatest possible extent. The placement officer indicates whether he agrees with the choice of trade or whether he doubts the candidate's qualities and attitude of mind for it. He also enters the date for examination for tuberculosis to which every candidate has to submit himself before he can be admitted to the vocational training centre.

The vocational guidance counsellor then investigates the applicant's general suitability and enters on the progress sheet:

- the level of the trades for which the candidate is considered capable; if this level is too low, the factors, if any, are also indicated which, nevertheless, favour his admission to training;
- the type of trade for which the candidate is considered suitable;
- the trade for which he wishes to be trained, taking into account the level and type of trade suitable for him.

Apart from the T.B. examination, the candidates are submitted to a further medical examination, if this is necessary in view of the physical fitness required for the occupation chosen or in view of the medical history of the applicant. The physician enters the result of the medical examination on the progress-sheet and also indicates whether a new medical examination will be needed before the completion of the course. This final medical examination is meant to discover whether there are any possible physical limitations which have to be taken into account when employment is being sought for the trainee.

The Director of the Employment Office decides whether the candidate may be admitted to the training-centre and fixes the date of admission in consultation with the Director of the centre.

The Director of the training centre enters on the progress-sheet the date when the training is started, completed or broken off.

The following entries are also made:

- the dates on which the discussions take place with the placement-officer during the training;

- the date on which the discussion(s) with the placement-officer took place concerning the follow-up (about 3 months after completion of the course);

- the date on which the director of the training centre during his evening consulting hour interviewed the trainee about his working-experience and about the possibility to go in for an examination, either (preferably) within the framework of the

apprenticeship system or in the centre itself (about 6 months after completion of the course);

- the date on which the examination took place in the training centre (about 12 months after completion of the training).

PROGRESS SHEET
FOR
(PROSPECTIVE) TRAINEES OF VOCATIONAL TRAINING CENTRES

ORIGINAL
(front page)

A. Name: P.A.HAMERMAN Date of birth: 1 MAY 19 — 34
Address: REMBRANDTSTRAAT 49 Nationality: NETHERLANDS Code — 55
Registered with Distr. Empl. Office at THE HAGUE District Code — 08/57./.1

Day school most recently attended: Elementary School (1); Advanced Elem. School A (2); Advanced Elem. School B (3); Other General Education (4); Junior Technical School (5); Other Vocational Training (6) — 6

Number of grades completed of day school most recently attended: — 1

The person concerned is: a) Amboinese (1); Repatriate (2); no Amboinese or Repatriate(3) — 3
b) able-bodied (1); disabled (2) — 1

Typification of occupational background: UNSKILLED WORKER; WORKED LATER ON AS AN APPRENTICE ELECTRICIAN, BUT HAD INSUFFICIENT EDUCATIONAL BACKGROUND.

Wants to be trained for: ELECTRICIAN
I think he is suitable for it: _____ *
I doubt whether he is suitable; for this reason a written examination is insufficiant.

The person concerned is prepared to attend a training course at the vocational training centre at THE HAGUE

Called up for t.b. examination on 24-12-1959 Result of the examination: no disorders

N.B. WAS TESTED IN 1950 AT THE DISTR.EMPL.OFFICE AT NIJMEGEN Date and initials of Placement Officer: 8-12-1959

B. The level of the person concerned (to be filled in in the square) — 5
The person concerned is suitable for:*
woodworking/metalworking/assistant electrician/motorcar repairman/stonecutter/street-paver/bricklayer/plasterer/dyke builder
Explanation to be given only if level is lower than 4: Although the person concerned has a level of ....., I am of the opinion that the following markedly compensatory factors justify training in a vocational training centre .....

The person concerned agrees to being trained for: ELECTRICIAN
(occupation which is suitable for him and suitable level)
14-12-1959
Date and Initials of Adviser:

C. As he wants to become a constructionfitter/shipplater/streetpaver/plasterer/dyke builder, *
As his medical history as an employee renders it necessary,
he was medically examined and found suitable for category (fill in B in square, if only suitable for medium-heavy work, fill in C if the person concerned is suitable for heavy work): — B
He was found to be medically unsuitable for the occupations: (limit the enumeration to the occupations of the non-deleted groups and occupations referred to sub B): .....

Fill in the letter X in the square, if a renewed medical examination should be necessary before the person concerned leaves the vocational training centre, in order to ascertain any limitations with regard to the placement of the person concerned. — [ ]

Date and initials of Physician:

D. The person concerned is not suitable for training *
The person concerned may be trained for: (fill in the occupation in the square): — ASSISTENT ELECTRICIAN
(Not only direction and level of the occupation are to be indicated, but the factor of physical fitness should also be taken into consideration).
The person concerned is available for training on 4-1-1960
Factors which have to be taken into account with regard to the training: .....

Date and Initials of Director of District Employment Office:
24-12-1959

* Please delete what is not applicable.

ORIGINAL
(back of the page)

E. Placed on waiting-list of vocational training centre at ..... sub no .....
for application course (1) /emigration course (2) /special course (3) /other course (4), which was notified to the Distr. Empl. Office on ..... 19 .....
The name of the factory in case of the special course is: .....
.....
The training was started at the vocational training centre at THE HAGUE on 4-1-1960
which was notified to the District Empl. Office on ..... 19 .....

F. The aid of the vocational guidance counsellor was enlisted on account of a change in vocational training on ..... 19 .....
Unlike what has been stated sub D, he is trained for ..... (to be filled in in the square)

G. The placement interview took place on 27-8-1960
In view of the completion of the course at the vocational training centre at THE HAGUE, the person concerned is available for placement on 3-9-1960
The Distr. Employment Office was informed of this date on 3-9-1960
The actual duration of training amounted to 30 weeks (exclusive of holidays, sickness, military service, etc.)
in consequence of SICKNESS AND LEAVE
the training was interrupted in weeks (less than 10 to be indicated by 01 etc.) 0.3
The duration of the course was exceeded by 43% , of which the adviser was informed on 3-9-1960

H. Removed before the end of the course on ..... 19 ....., of which the District Employment Office was informed in behalf of placement officer and adviser on ..... 19 ..... Most recently carried out work order and syllabus was: .....
The training was prematurely ended on account of .....
prolonged illness (01) /medical advice (02) military service (03) /emigration (04) /removal (05)/ selection regulations (06) /behaviour (07) /objections to the amount of the compensation for loss of earnings (08) /passing on to normal industry (09) /other reasons (10) . .
Explanation of the above-mentioned reason: .....
.....

Estimated average for:			
	performance mark for	theoretical work	. . .
	" " "	practical work	. . .
	working speed mark for	theoretical work	. . .
	" " " "	practical work	. . .
	quality mark for	theoretical work	. . .
	" " "	practical work	. . .

I. The wage-tax was deducted from the wages in accordance with tariff group III III/I
(please state the number of children).
The duplicate of the progress sheet was sent to the head office on 3-10-1960
by the vocational training centre at .....

J. Called up for evening consulting hour at vocational training centre at THE HAGUE on 4-1-1961
Particulars: APPEARED
.....
The District Employment Office was notified of this on .....

K. Examination date: 20-24 November 1961
Result of examination: PASSED.

Chapter II. THE METHOD OF TRAINING

§ 1 VOCATIONAL TRAINING ACCORDING TO THE CARRARD METHOD AND THE "ACCELERATED TRAINING" METHOD

About 1930 the Swiss psychologist and engineer, Mr. Carrard, developed a new training method for industrial trades. He formulated the following requirements which each training course has to meet:

- to create an interest for the work;
- to avoid the acquiring of wrong habits and movements particularly as far as the automation of the operations to be learnt in elements is concerned;
- to see to it that the exercises are gradually becoming more difficult, step by step.

In addition, Carrard has drawn up the following directives:

- just one difficulty should be overcome at a time;
- the next step should not be taken until the preceding operations are mastered satisfactorily;
- the instruction should be based on actual practice and should not be theoretical;
- the trainee should take an active part in the training; his interest should be aroused, he should never be a mere looker-on;
- the exercises should be composed in such a way that the trainee can go over the previously learnt operations again and again;
- if a movement is not carried out properly, the preceding corresponding exercises are to be carried out again and again until the trainee has learnt to carry out the movement in the proper way;
- independent exercises should be taught in a parallel way in order to make for variety and relaxation; monotony should be avoided at all costs;
- the exercise of a movement may only last as long as there is any progress noticeable;
- the working speed should be raised gradually.

The ideas developed by Carrard have gradually met with response, in particular with regard to the training of adults for technical trades.

After World War II his principles were further developed and thus the idea of "accelerated training" came into being.

Accelerated training is based on the principle that the vocational training of adults should not be directed towards the aptitude requirements rooted in the past, but should be confined to imparting those aptitudes and that understanding which the trainees need for practising an occupation as it is being practised to-day.

The name "accelerated training" sometimes aroused unnecessary opposition.

The following characteristics have been made up during the 46th session of the International Labour Office (1961) and give a clear description of accelerated training:

- training of trainees whose aptitude for a certain trade has already been established according to psychotechnical standards;

- training based on a schooling-analysis of the trade concerned, and indicating in detail which practical exercises, theory and special subjects should be taught;
- training which proceeds step by step, with carefully graduated difficulties, and at a speed in accordance with the ability of the trainee;
- the imparting of only the skilfulness, the insight and the knowledge which enable the trainee to qualify for a specific job as rapidly as possible;
- the concentration on practical training and the confining of theoretical subjects to what is strictly necessary;
- the providing of theoretical lessons side by side with practical exercises and in accordance with the requirements of the practical work;
- the limitation of the number of trainees per instructor to make for continuous supervision of the instructor for each trainee;
- training in the surroundings and with the machinery, tools and materials which correspond as closely as possibly to those found in normal industry;
- using to the greatest possible extent of appliances which will make instruction easier.

§ 2 THE METHOD OF TRAINING IN THE VOCATIONAL TRAINING CENTRES FOR ADULTS IN THE NETHERLANDS

A. Introduction

In March, 1945, shortly after the liberation of the southern part of the Netherlands, the Minister of Social Affairs commissioned some officials to develop a method for the vocational training of adults. This method was based on the principles of "accelerated training", already known at that time, and the experience which Anglo-Saxon countries had gained in their efforts to increase war-production.

The first courses were given at Eindhoven and only for the trades in the building-industry. The results obtained were such that courses were subsequently introduced for the metal trades as well. The rapidly growing demand for skilled workers which resulted from industrial recovery led to the foundation of an increasing number of Vocational Training Centres all over the country.

In the course of the years the original system was gradually improved and adapted to the changing circumstances. At the moment the most important elements of both the Carrard method and the "accelerated training" method are now incorporated in the new vocational training method for adults.

B. The Basic Ideas Underlying the Training in the Vocational Training Centres for Adults

In the vocational training of adults the following principles are being followed:
- for achieving a good training result, for the enjoyment of life of the candidates and for the productive capacity of industry, it is essential that the prospective trainees should be selected;
- the preliminary selection of the candidates may be confined to a psychological aptitude test and a medical examination;
- the aptitude test should among other things indicate the intellectual capacities of the candidate.

The system of classification of occupations according to their mutual affinity, as it is used by the State Labour Office, classifies the different occupations according to the required level of intellectual faculties into seven occupational classes, which are indicated by the numbers one to seven, number one being the lowest class.

The vocational training centres provide training for the occupational classes 3, 4 and 5. The meaning of these figures is as follows:

- class 3: more or less complicated work demanding insight and judgement and some months' practical experience;
- class 4: more complicated work, demanding judgement, initiative, considerable practical experience and, possibly, some theoretical knowledge;
- class 5: complicated work for which an outspoken natural aptitude, a considerable amount of practical experience as well as theoretical knowledge are required.

A candidate, who has been found suitable for training for a trade in a certain class

is, therefore, not eligible for a higher classified trade. He may be trained for a trade in a lower class, if he should wish so.

It has also been accepted:

- that the medical selection should mainly be directed towards assessing whether the candidate concerned is capable of meeting the physical demands made by the trade in question. In the system of classification mentioned above, the trades of the classes 1 to 5 have been indicated as A, B, or C, in accordance with the increasing degree of physical exertion. For the trades of the classes 3, 4 and 5, for which training is provided in the centres we have only to do with the categories B (normal type of physical work) or C (heavy type of physical work). Trainees who have been found suitable for a trade B can not follow the training for a trade C;
- that the trainee's wish for a specific training prevails, provided that the aptitude test and the preliminary medical examination have proved him to be suitable for it;
- that the preliminary selection should be followed by a continuous selection during the training and determining the most suitable trade for the trainee;
- that the training should as much as possible be independent of the teaching-abilities of the instructor, who, however, should be a good skilled craftsman. It is too much to expect that the same man will combine both the qualities of an able teacher and of a skilled worker;
- that the work situation in which the training takes place should be that of the workshop rather than that of the schoolroom. This workshop-atmosphere which is considered more desirable and also more acceptable than the school-atmosphere, is imitated in the training centres as closely as possible;
- that the instructor should not convince the trainee of the value of a specific exercise, but should, from the outset, attempt to arouse his interest and professional pride.

In line with the Carrard method, the following principles are adhered to:

- to teach basic operations thoroughly;
- to train step by step;
- to increase the difficulties of the exercises gradually;
- to maintain the quality of the work from the outset at as high a level as possible by avoiding mistakes;
- to raise the working-speed during the course to the working-speed-level of the skilled craftsman;
- to give the strictly necessary theoretical knowledge before a start is made with the practical exercises.

C. The Individual Vocational Training of Adults

The individual method has been chosen for the training of adults for the following reasons:

1. It makes possible a closer approximation to the atmosphere in industral establishments. Each trainee has his own job and is responsible for his own work. Because

different trainees are working at different tasks, they are prevented from imitating each other's work without supervision. Furthermore, there is the advantage that - like in industry - the time factor can be taken into account.

2. The trainees can overcome various difficulties whilst working. In this way they learn in practice to solve problems by trying to find a way out of the difficulties they meet with day by day, gaining confidence in this method at the same time. Problems set in the abstract are more difficult to solve, but they will tackle them when put into concrete terms. The course should therefore be set up in such a way that the various difficulties of the trade are spread out over the various workpieces (tasks).
3. Every trainee can complete the course at his own speed. The speed with which trainees go through the course varies tremendously. It depends on intelligence, character and previous education. Trainees with a good comprehension need less time to understand something than others with less comprehension. Some trainees are slow "off the mark" but after getting under way appear to do everything quickly. The role played by character finds expression in devotion and perseverance. These qualities can now have their full weight because there is no need for the more brilliant trainees to wait continually for the less competent. The latter can get on with the course quietly and are not harassed by the more gifted trainees. Furthermore, there is a possibility for those who have enjoyed some previous training to omit a part of their course or to revise it rapidly. This has psychological as well as financial advantages.
4. The admission of trainees is not restricted to any particular number or date. Candidates can be accepted day after day - provided that there is sufficient space available - inconvenient periods of waiting being obviated. This also means that trainees finish their course one by one. This avoids congestion at the employment offices and waiting.
5. The individual method of training calls for less investments. The demand for training materials and tools follows an even pattern.
   Situations in which all students of a class suddenly require some particular object or tool do not arise. Consequently, only comparatively small numbers of tools can be kept in stock, whilst, because of their being regularly distributed, all tools can be used continuously and intensively.
6. The training can be checked. Since each trainee can go on working unhampered, it is possible to check whether everyone is exerting himself sufficiently. Insufficient progress reveals itself automatically, making it possible to take the necessary measures immediately.
   Furthermore, it is possible to supervise the instructors. It can easily be seen whether or not the instructors give the trainees sufficient instruction and assist them in solving their problems.
7. The courses can be planned at a central point. The planning at a central point (the Vocational Training Department of the State Labour Office) of parts of the training-programme which should be followed by the trainee in a proper sequence guarantees that the trainees indeed carry out all parts of the training-programme which has been worked out in co-operation with organized industry, the authorities in charge of the apprenticeship system and other authorities.

It is sometimes considered a disadvantage of the individual training that the trainees do not learn how to work in a team. It is felt that they might become individualists who will find it difficult later on to co-operate with their fellow-craftsmen.

Mutual co-operation is however also taught in the training centres. The individual training method every now and then does indeed give the impression that no attention can be paid to this matter. In reality, however, this training is also in this respect entirely adapted to the situation in industry. It frequently happens that craftsmen work together on the same product, not necessarily all of them performing the same operation at the same time. Two or more fitters, working together at a specific job, divide the work. They are not really working together, but each of them fulfils his own task in such a way that a suitable product can be made from the various components. The various components are made in accordance with directions on a drawing, a description, or written instruction.

On the basis of this information each worker has to make his part of the whole with the greatest accuracy. If the work of one man shows, for example, a deviation from the prescribed measurements, he is responsible. His fellow workers do not want to suffer from the disadvantages of his mistake. It is on this idea that the tariff system and working programmes are based in industry. The trainee therefore should learn to perform his own allotted task independently and in strict accordance with the given instructions without hindering his colleagues or damaging their work. However, they are working side by side with many other trainees who from time to time, just as in a factory, call on them for assistance.

In this way there is no question of creating a spirit of individualism in the bad sense of the word. What does arise is a certain independence which is a prime essential for any craftsman.

Chapter III. THE ORGANIZATION

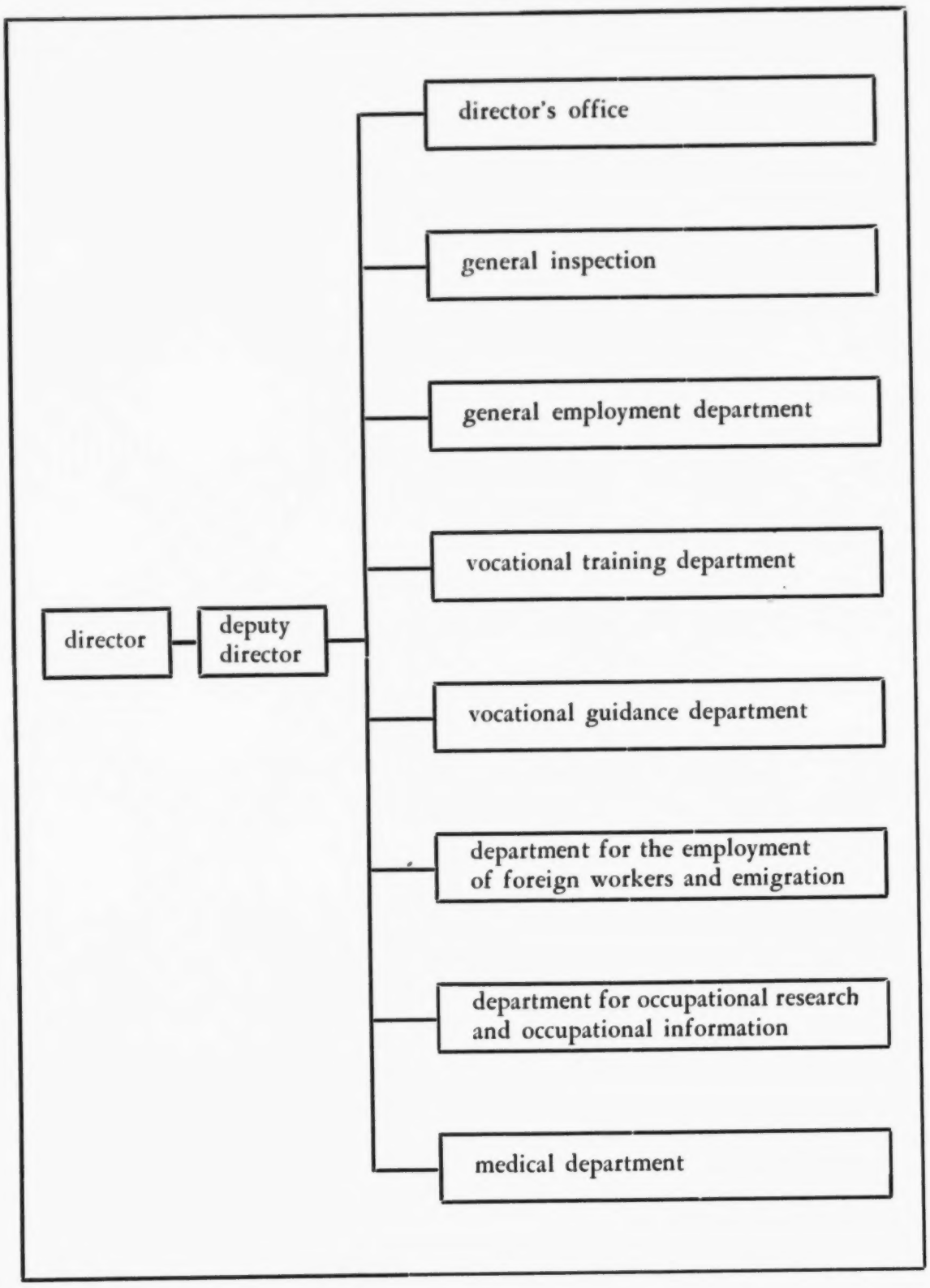
The vocational-training-department is a department of the State Labour Office which comes under the National Employment Service of the Ministry of Social Affairs and Public Health (see the organization-chart on the next page).

This department has the task of organizing and inspecting the courses in the twenty-four vocational training centres for adults.

The organization of the vocational training department is given in illustration IV, page 30.

ILLUSTRATION III

THE ORGANIZATION OF THE STATE LABOUR OFFICE



THE ORGANIZATION

OF THE

VOCATIONAL TRAINING DEPARTMENT

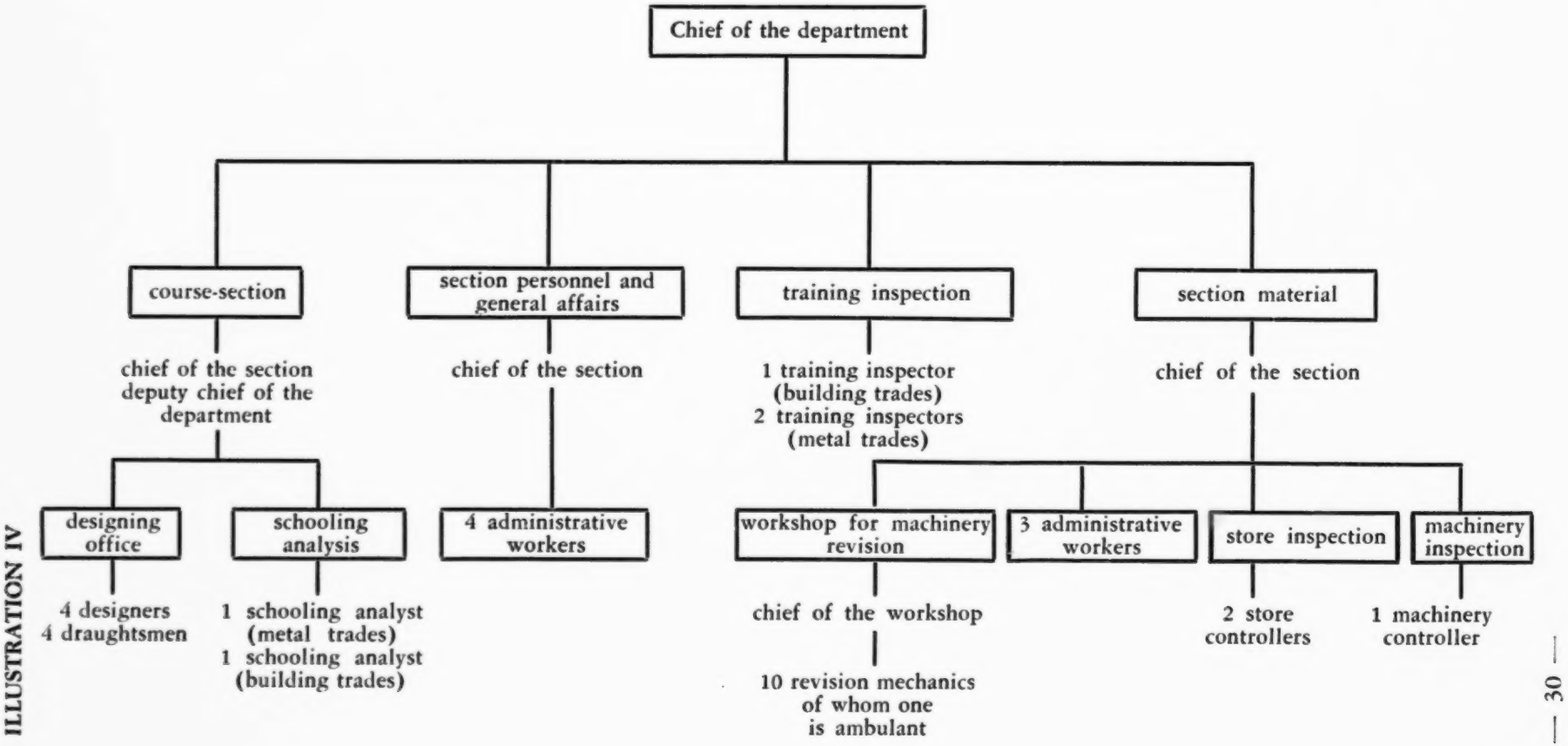


ILLUSTRATION IV

Chapter IV. THE STAFF WORK

§ 1 THE TASK OF THE VOCATIONAL TRAINING DEPARTMENT

The vocational training department:

- makes a schooling-analysis of the trades for which a (new) syllabus must be drawn up, and decides on the basis of this analysis which part of it shall be considered for incorporation into the syllabus. Wherever possible, the examination requirements of the appropriate apprenticeship scheme are taken into account;
- draws up the syllabus and the work-sheets and indicates the sequence in which the trainee has to carry out the written, practical and theoretical tasks including the drawings that belong to the work-sheets;
- revises the existing syllabuses on the basis of the training inspectors' reports and the findings of the directors and instructors of the training centres, or as a direct response to changes which have taken place in the trades concerned;
- gives general directives on training and on the running of the vocational training centres;
- puts forward suggestions regarding the appointment and detachment of the staff of the training centres in consultation with the chief inspector-director who in each province regulates the manpower management as a representative of the Director-General of the National Employment Service;
- provides for the supply of materials to the training centres;
- keeps the equipment of the centres up to a proper level and in good working order;
- inspects the training and controls the management of the stores and the maintenance of the machinery in the centres;
- revises the machine tools of the centres;
- organizes application courses for the staff of the centres;
- gives general directives for the building, the equipment and the maintenance of the centres;
- maintains contact with industral firms, authorities concerned with apprenticeship systems and West-European organizations concerned with the vocational training of adults, in order to keep in touch with current views on training and the demands which an efficient training must meet.

§ 2 THE PROCEDURE AND THE DIVISION OF TASKS DURING A REVISION OF A COURSE OR A SYLLABUS PRECEDED BY A SCHOOLING-ANALYSIS

A. The Terms of Reference

The terms of reference are laid down by the head of the vocational training department and indicate as clearly as possible both the direction and scope of the projected schooling-analysis. The investigation lasts a few days and, as a rule, makes little demand on the schooling-analyst.

B. The Determination of the Contents of the Training

The head of the vocational training department contacts the authorities concerned

with the apprenticeship system and a few important firms which are considered to be typical for the trade concerned. The schooling-analyst is introduced at this point and a list is drawn up of the firms where an analysis should anyhow be made, if a complete picture is to be obtained of the contents of the trade. Another list is drawn up of the workers at different levels of each firm who will be asked to give their opinion about the contents of the trade.

The schooling-analyst investigates what - to his opinion - should constitute the contents of the course.

He starts by classifying the main tasks and operations carried out by the craftsman concerned and according to their frequency and degree of difficulty.

He then makes a more detailed study, establishing for all simple operations:

- the machines used;
- the tools used;
- the appliances used;
- the materials used;
- the relative degree of difficulty;
- the degree of precision and the tools by which it is measured;
- the practical insight, general knowledge and special theoretical knowledge needed to carry out the operation in an expert manner;
- the circumstances under which the work is usually carried out (in the open air or indoors; the temperature; the light; the measure of cleanliness of the surroundings; the degree of co-operation with colleagues);
- the exact position of body, arms, legs, feet and hands while performing specific work;
- the technical terms and
- the safety-regulations.

Lack of manual dexterity can be partly overcome if the elementary actions are learnt without mistakes (see Chapter V, § 2 B) and the sequence of steps in the tasks to be performed is clearly indicated.

The schooling-analyst bears in mind:

- that the first workpieces should preferably consist of only one operation, which can thus receive the trainee's full attention;
- that the continuous selection of the trainee for his suitability for a particular trade on the basis of the assessment of his work must be possible during the training;
- that the difficulties which the work presents must become greater as the training proceeds;
- that the trainee must be allowed to encounter these difficulties one at a time;
- that initially more attention must be paid to quality than to speed; that the working speed must be gradually raised and that speed combined with the highest possible quality of work is decisive at the end of the course. In other words, the trainee should first learn to perform an operation flawlessly without being pressed for time, but should gradually become accustomed to produce work of good quality within the prescribed time-limit. He should finally adapt himself to the production-

requirements which he will have to reach in industry;
- that the circumstances under which certain jobs have to be carried out in industry must be imitated in the later tasks of the course, if these conditions impose greater physical demands on the worker (working lying down, at a height, in a narrow space, on a slippery floor, etc.).
- that operations which in industry can be learnt quickly and easily and without any trouble need not be incorporated into the course;
- that the work must be varied, wherever possible to avoid a falling off of the attention or interest as a result of monotony;
- that personal or local interpretations of certain operations must be avoided in the course, in order to ensure that the possibilities of finding work for the trainees on completion of the training are as wide as possible.

For some of the later tasks, especially the most complex ones, it may be desirable to introduce a mock-up in which typical working circumstances can be imitated.

While making his investigation, the schooling-analyst must bear in mind that senior officials sometimes think that a craftsman's job has a wider scope than it actually has, that some bosses overrate the importance of the theoretical knowledge required and that some experienced workers no longer have a clear idea of the difficulties which they themselves gradually overcame in the past.

The total picture of the job content must be arrived at from close observation given both by young and adult workers and their supervisors.

During the analysis the analyst collects as many drawings, photographs and models of typical pieces of work as possible and makes a survey of the visual aids and standard specifications which may be of importance to the training.

He makes a separate study of the way in which particular manipulations can be learnt.

He consults the examination requirements of the appropriate apprenticeship system and investigates the developments which have taken place in the trade as a result of mechanization, and by the use of modern aids and tools, standardization or stricter safety standards.

He then arranges the operations in such a way:

- that the basic operations precede the more complex ones;
- that the degree of difficulty is increased in terms of the demands made on the trainee's insight, manual dexterity and accuracy and
- that the essential theory precedes the practical operation to which it applies.

When drawing up a time schedule for the course, the analyst bears in mind that repetition of difficult operations may be necessary.

C. The Compiling of the New Syllabus or Course

The analyst is assisted by a craftsman (instructor) in working out new tasks and drawings (see Chapter V, § 3).

The craftsman's technical understanding and practical experience are indispensable when "translating" the schooling-analysis into work-sheets and drawings.

The draughtsmen of the vocational training department prepare the final instructions and drawings and see to it that they correspond with other instructions and drawings and they ensure that the appropriate specifications and standards are applied.

The analyst sees to it that all elements of the analysis and of the course receive proper attention.

D. The Checking of New Work Orders

The new work orders and drawings are checked as soon as possible in one of the training centres, under the direction of an experienced instructor in the appropriate trade.

On the basis of the findings any necessary corrections are then made to:

- the sequence of the tasks;
- the sequence of the steps for a single task;
- the explanation to be given at each stage;
- the nominal time in which the task has to be carried out;
- the criteria used to evaluate the quality of the work and
- the prescribed tools or materials.

Gradual testing of new work-sheets may form a valuable contribution to a well integrated syllabus and to a satisfactory relationship between the vocational training department and the training centres.

E. The Introduction of the New Syllabus or Course

The new work-sheets and drawings are printed by the State Printing Bureau and distributed over the various centres according to the directives of the vocational training department.

The training-inspectors pay particular attention to the way in which the new work-orders are being carried out and inform the vocational training department in good time of any changes which they may consider necessary with regard to the form or sequence of the tasks.

Chapter V. CARRYING OUT THE TRAINING

§ 1 THE TRAINING-SCHEDULE

In each centre training is as a rule provided for about 3 trades in the building sector and for about 7 trades in the metal sector. This renders it possible to train the adults for the trade which is most suitable for them in view of their intellectual powers and physical fitness, whereby his preference for a certain trade is being taken into account to the greatest possible extent.

During the selection (see chapter I, § 4 and § 5) the intellectual possibilities and physical fitness of each candidate are assessed. A trainee who is found suitable for a certain level cannot be trained for a trade of a higher level. If the continuous selection during the training should prove that a trainee is considered suitable for a trade of a higher level, application can be made for an additional aptitude test. This test is, however, seldom needed and asked for. Nor may a trainee be trained for a trade which demands greater physical exertion than his medical examination has shown him to be capable of.

Training at the centres takes place according to a nationally standardized training scheme. Illustration V, page 37, shows the training scheme for the metalworking trades and illustration VI, page 38, the scheme for the building trades.

It can be seen from the training scheme that the trainees for all metalworking trades begin their training with the same tasks. For nearly all trainees in the building sector the first part of the course is also the same. The common part of the course is referred to as the basic course. The training for a trade - the syllabus - is split into various parts, each of which is indicated by a number. The course for maintenance fitter, for example, consists of the syllabus sections 101A, 101, 102, 103A, 107, 108 and 110; see illustration V, page 37.

The basic course for the building trades consists of syllabus section 1; see illustration VI, page 38.

The basic course includes a great diversity of practical and theoretical work; see also § 2 of this chapter. On the basis of the trainee's results during his basic training, the director of the centre considers his aptitude for the chosen trade; see also § 6 of this chapter. During the basic course, too, the trainee is able to measure his own potentialities and to gain a clear notion of what the new trade will mean for him.

This kind of "continuous selection" is repeated once or several times during some training courses; see the points "a" and "b" in the training schemes. The points "a" and "b" are called "selection points".

Because the work of an assistant electrician or a stonecutter is too specialized and because it appeared to be unnecessary to make welders and roadmakers follow the whole basic course, the continuous selection for these trades takes place earlier in the syllabus or not at all.

When making this continuous selection the director of the centre not only takes into account the results of the aptitude test and of the medical examination; he also considers the diligence, accuracy, working speed and general attitude shown by the trainee during the parts of the course completed.

The number of weeks mentioned in the training schemes indicates the nominal length of the course. It goes without saying that these nominal periods are prolonged

by holidays, unworkable weather or illness. The actual duration of training varies considerably from one trainee to another. The average duration of training for the trades amounts to:

bricklayer	35	weeks
stonecutter	47	„
street-paver	20	„
plasterer	29	„
carpenter	57	„
concrete carpenter	42	„
machine-fitter	37	„
constructional ironwork fitter	37	„
precision-fitter	92	„
maintenance-fitter	63	„
lathe-worker	47	„
electrician's mate	27	„
gas welder	17	„
electric welder	22	„
motorcar-repairman	32	„
sheet metal worker	28	„
ship-plater	32	„
plumber	35	„
industrial gas- and waterfitter	14	„

The worksheets are distributed to the centres per syllabus.

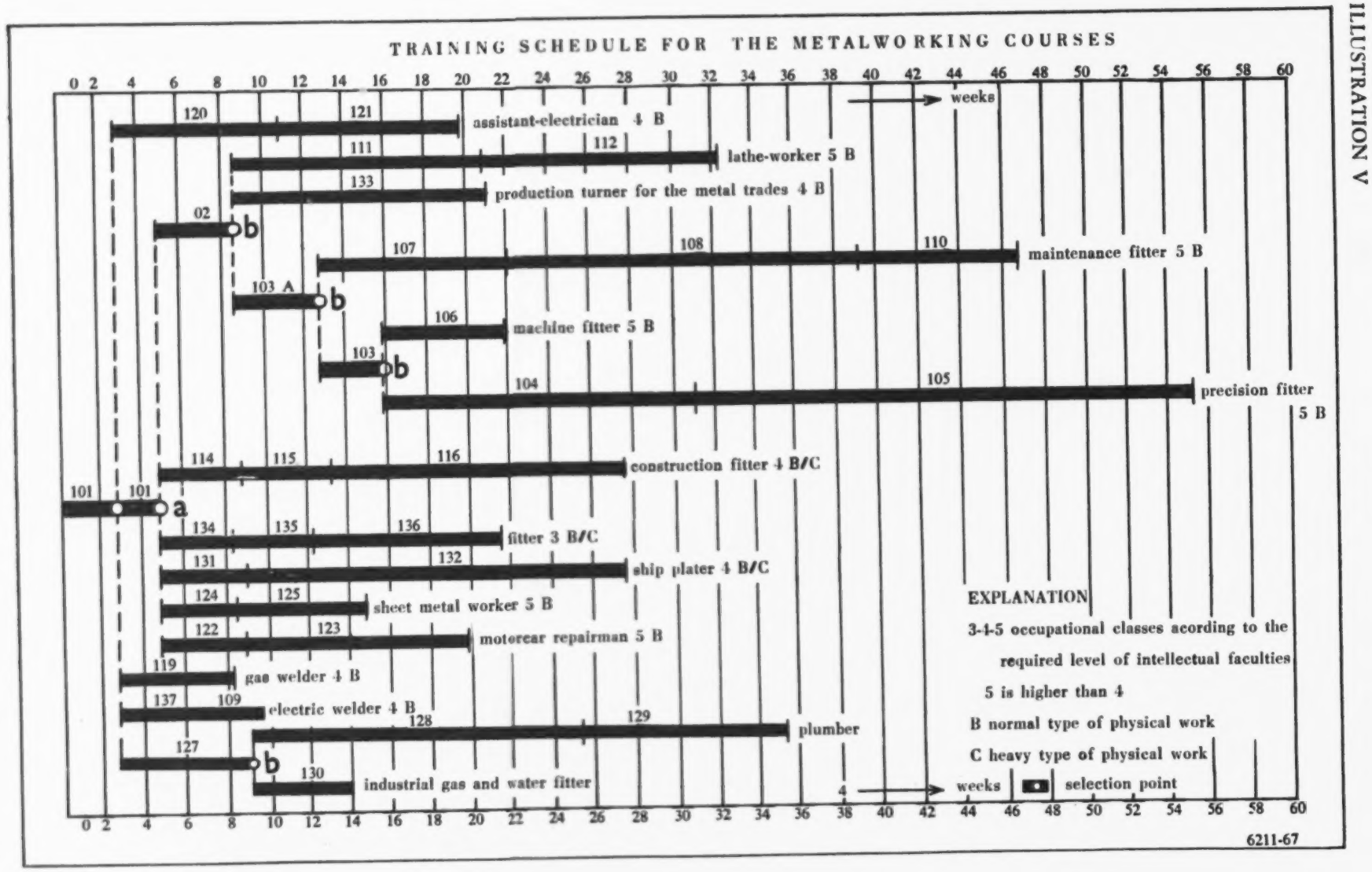
A series of worksheets directed towards one particular ability is called a "course". There are dozens of courses, such as e.g. carpentry (HO-TI), planing (PC-SCH), machine-fitting (PC-MB), turning (ME-DR), saw sharpening (HO-VIJ), sketching (TL-G), arithmatics (TL-GR), geometrical constructions (TL-MC), and projection drawing (TL-PR).

Each course consists of various course parts, which are fixed groups of consecutive worksheets. Each syllabus section consists of fixed groups of consecutive course parts. In this way syllabus section 106 comprises the following course parts: PC-MB 21-26, PC-DM 2-7 (de-mounting), VA-MB 1-19 (technical drawing for machine-fitting) and VR-MB 5-11 (theoretical questions on machine-fitting).

When a new syllabus is drawn up, use can often be made of existing course parts.

Revisions may be carried out per syllabus, per syllabus section, or per course part.

ILLUSTRATION V



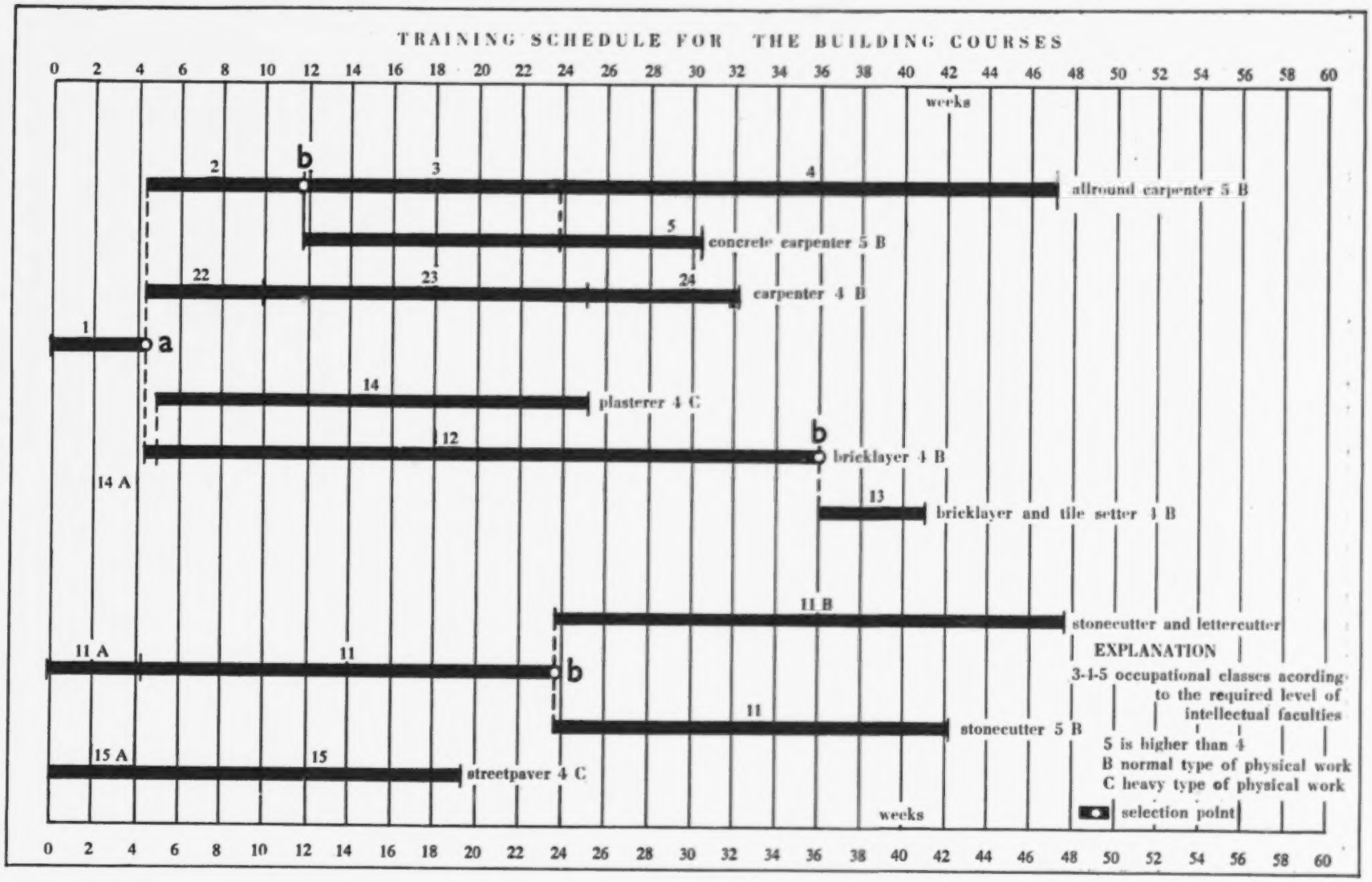


ILLUSTRATION VI

§ 2 THE BASIC COURSE

A. The Compiling of the Course

The basis course, both for the metal working and the building trades takes about five weeks. It comprises calculating, reading of drawings, measuring, knowledge of materials and also the basic manual dexterity exercises.

For the trainee in metalworking it is extremely important to be able to measure accurately. During the basic course for the metal trades much attention is therefore paid to marking off and measuring. In doing this the trainee must get used to the fact that the measuring instrument "controls" the operation.

The basic manual dexterity exercises for the trainee in metalwork comprise:

- marking off with footrule and backsquare;
- measuring with callipers;
- measuring with slide gauge;
- cutting and hacking;
- filing deadflat and filing square;
- drilling, lapping and cutting of thread;
- bending and drawing of plate material;
- riveling, and
- grinding of boring-tools.

Photograph c

It is very important for the metalworking trainee that he should learn to measure accurately

Trainees for the building trades must in particular develop the "carpenter's eye". The basic manual dexterity exercises for the building trades comprise:

- setting out, levelling and planing with the rule, the carpenter's pencil, the thread, the folding rule, the spirit-level, the large square and the plumb-bob;
- piling of some mason bonds;
- masoning flat and level of some simple brickwork with the trowel, the spirit-level and the square;
- marking of dimensions on the basis of a timberlist with the folding rule;
- cross cutting and curring with the grain with a large handsaw;
- planing up surfaces flat, straight and square with the jack plane in view;
- marking according to final dimensions with the folding rule;
- planing according to final dimensions with the jack plane;
- marking according to final dimensions of the rough planed timber with the folding rule and the square;
- marking of patches on depth according to final dimensions with the marking gauge;
- sawing along the line with the small cross cut saw and the tenon saw;
- curring flat with the paring-chisel;
- sawing around with the compass-saw;
- nailing and using the pincers;
- punching of wire-nails.

The basic course for all trades also comprises various exercises in drawing in European and American projections of objects given in oblique projection (see illustrations VII and VIII, pages 43 and 44) and calculating (adding, subtracting, multiplying, dividing, working in decimals and fractions).

During the basic training the trainee becomes gradually accustomed to the technical jargon and the industrial atmosphere by:

- beginning and finishing work on time;
- asking for leave in good time;
- reporting sick in the correct way;
- learning technical terms and designations;
- learning standard designations and the signs and abbreviations which appear on drawings;
- knowing the names of bolts, nuts and profile steel;
- borrowing tools at token charge;
- getting accustomed to a good care of tools;
- keeping the working area tidy and clean;
- carrying out work within a prescribed time limit;
- learning to read and understand written instructions;
- observing safety regulations, e.g. wearing safety clothing and safety goggles, keeping passages clear, keeping the hair cut short (in the case of the metalworker), observing "no smoking" rules in the prescribed areas.

Some trainees must also be brought to a gradual understanding of their proper relationship with authority. The instructor must be accepted also as a direct superior who observes the progress which the trainee is making, being ready to answer his

Photograph d

The trainees are accustomed to the atmosphere of their future occupation (by having to wear safety clothing and safety goggles, and having to keep passages clear)

questions or intervening if he does something in the wrong way. Of course the trainee has various instructors in rotation who instruct him in their own special field.

At the beginning of the basic course little attention is paid to working speed which, however, becomes more and more important as the training progresses. At this first stage, therefore, the trainee can give practically all his attention to the quality of his work.

B. The Preliminary Exercises in Working Technique

During the basic course the trainee takes part in ten preliminary exercises in working technique (abbreviation in Dutch "artevo"). In this way he learns how to handle the commonest tools with his body in the right posture, with the right movements of his joints, at the right working speed - which varies for each operation - and using the right degree of strength.

Much attention is paid to learning the correct technique in such operations as filing, hammering, sawing, cutting, tightening a nut, the manipulation of the plane, the screwdriver, the chisel, the scutch and trowel.

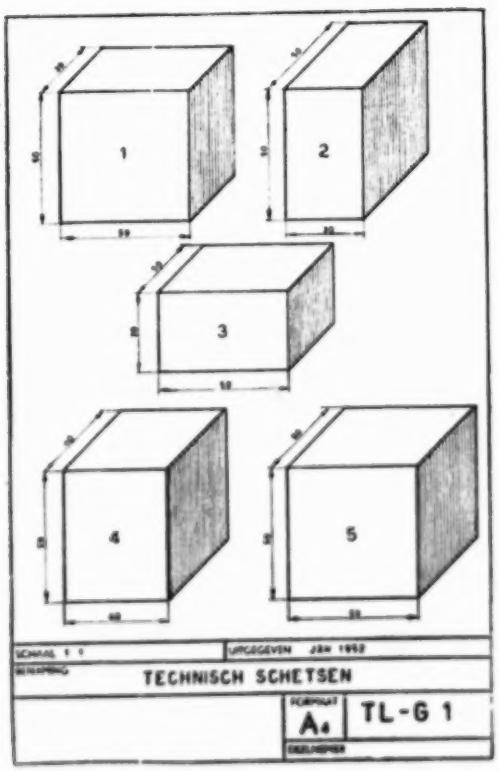
It is obviously very time-consuming to correct a badly learnt method of handling things.

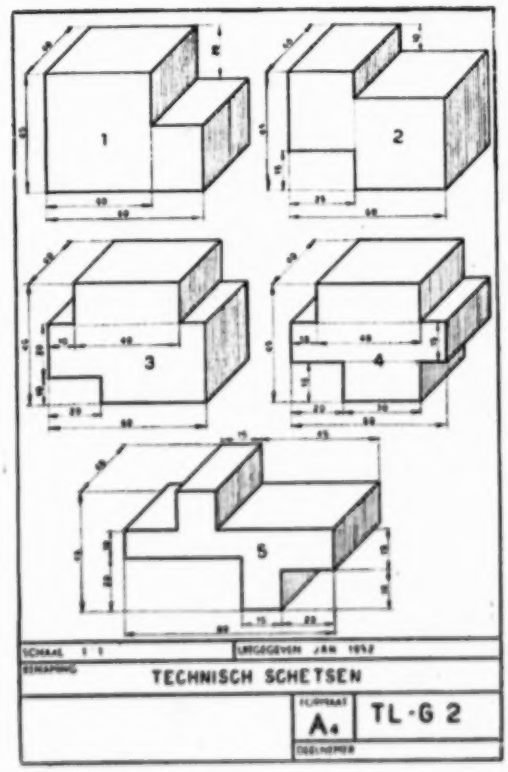
The instructor in the practical course can, it is true, clearly demonstrate the correct movements after having explained everything, but when the trainee begins to imitate these movements, he is up against so many difficulties at the same time that it is impossible for him to cope with them all.

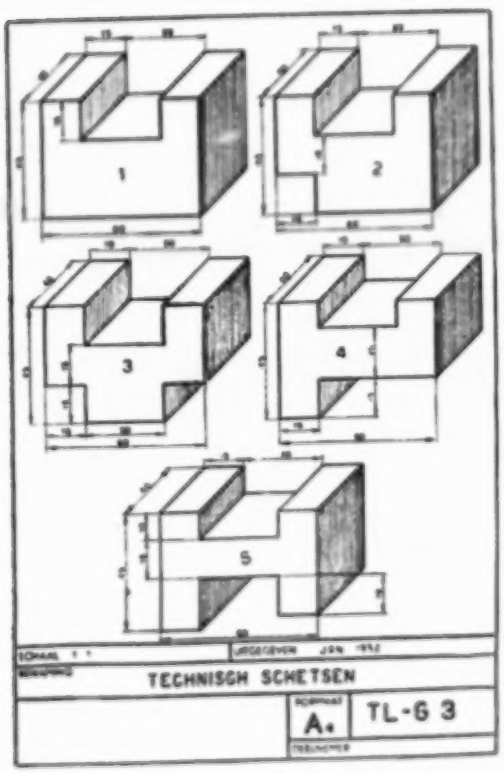
For this reason some preliminary exercises in working technique (artevo), which correspond to the various trades, have been devised.

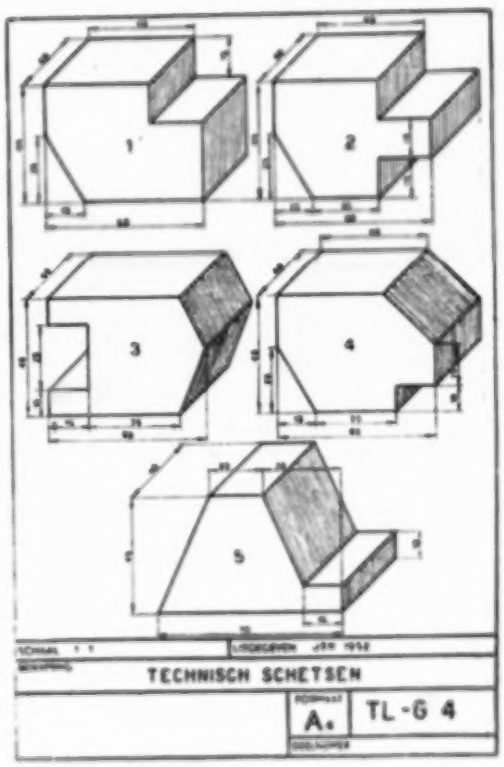
These "artevo" exercises are performed in a specially fitted-out workshop, with the help of aids especially designed for the purpose.

ILLUSTRATION VII



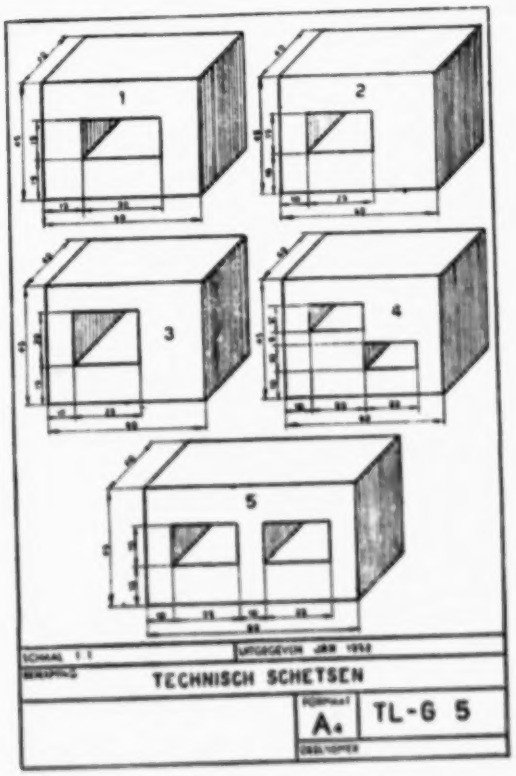


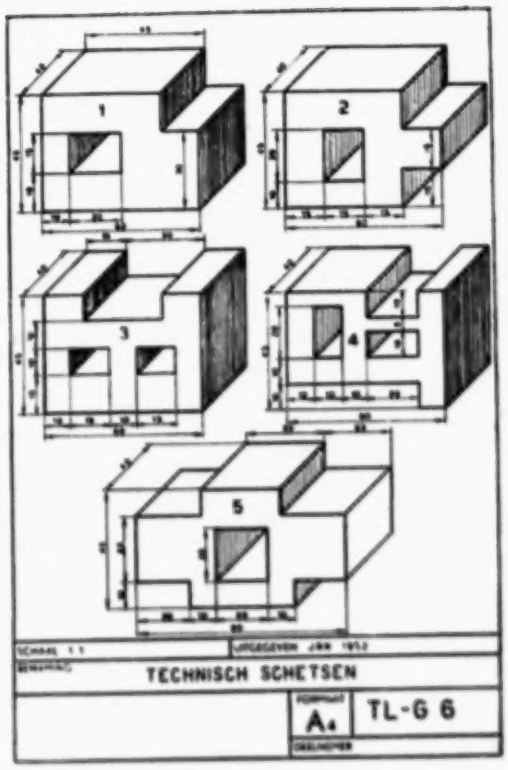


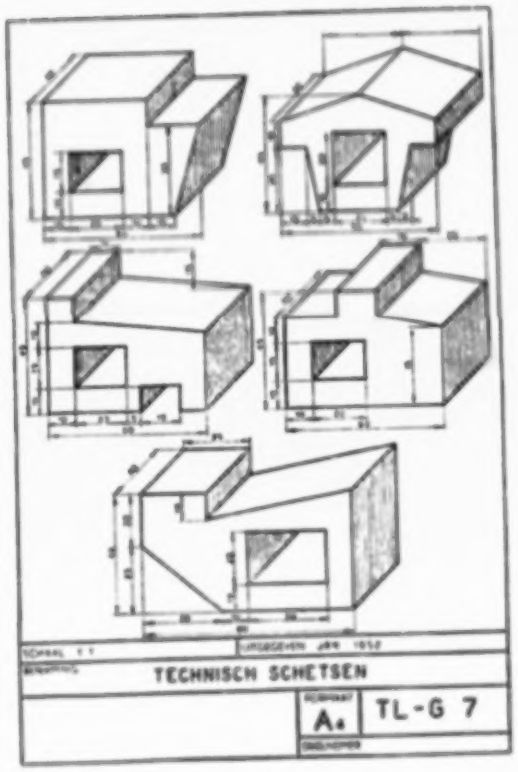


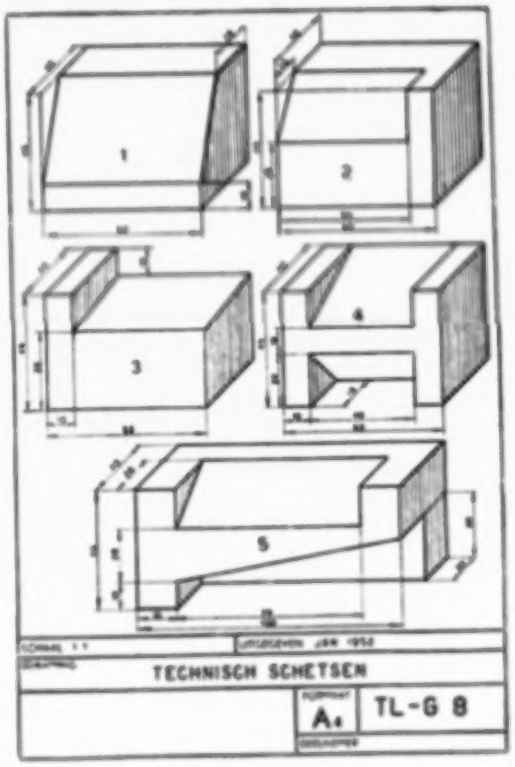
Oblique projection drawings which the trainee must convert into European or American projection

ILLUSTRATION VIII









Oblique projection drawings which the trainee must convert into European or American projection

The instructor who gives the "artevo" lessons must be well aware of their great value and must pay attention to the smallest mistakes; the choice of the "artevo" instructor, therefore, requires some care.

The "artevo" exercises are given in accordance with very exact instructions; attention is also paid to the understanding which the trainee must have of the possibilities of the various materials.

One hour of "artevo" exercises at most are given in one day. This hour can be split up, at the discretion of the instructor, into two or three periods and includes time for practising movements in growing order of difficulty.

Photograph e

A preliminary exercise in working technique for manipulating a screw driver

A. The Preparation and Distribution

The worksheets are typed out in the vocational training department and the corresponding drawings are made on tracing paper. The State Printing Office makes offsetplates of both worksheets and drawings and prints the final copies by means of a "rota print" offset machine.

The State Printing Office also compiles the worksheets and drawings into the various syllabuses under the direction of the vocational training department and distributes them to the vocational training centres on request.

In January, 1963, about 2000 different worksheets and about 1300 drawings were in use.

B. The Lay-out of the Worksheet

Illustrations IX to XII on pages 48 to 52 inclusive show examples of worksheets and drawings which are used for training in the building- and metalworking-trades. The worksheets contain the following information:

- the work to be carried out;
- the sequence (the steps) in which the work is to be done;
- the explanatory column, i.e. the points which must receive attention at each step. Information is only given in this column if it is essential to the trainee's progress;
- in a number of cases (see illustration XI) a third column is used to indicate to the trainee the desirability to ask the instructor for assistance. This may be to demonstrate a new operation, to make an interim check or to measure a piece of work;
- the tools, the materials and the accessories which must be used;
- the time in which the average trainee can complete the work - given in hours and tenths of hours;
- name and number of the trainee;
- the starting time and finishing time of the work as fixed in tenths of hours by a time clock;
- the assessment elements for quality; these elements differ both in number and type for each worksheet. Each element may affect the standard quality mark (10) by + 1 or −1;
- the time worked, which time is derived from the starting time and finishing time of the work, account being taken of the time unavoidably lost, the length of which is also entered on the worksheet;
- the working speed, which is calculated on the basis of $\frac{\text{standard time}}{\text{time worked}} \times 100$;
- the performance mark, which is the quality mark x the working speed mark (normally 1000), for some work this mark may be adjusted by a small addition or

subtraction for work which shows that the trainee's understanding of his trade, his care for his tools, his observance of the safety regulations or concern for tidiness and cleanliness has been far above or far below the average.

On some worksheets for practical work a certain amount of instruction is given as to how to carry out the work, and about the material, the tools or the safety measures. But this information must be of practical value only to the work in hand and must be essential to the trainee's doing his work intelligently.

The worksheets include a few questions which help the trainee to find out whether he has understood his instructions. These questions are asked by the instructor at random when the trainee hands in his finished workpiece. In this way the instructor is able to assess how much the trainee understands of his trade. In due course the trainee must answer the questions on this subject in writing.

For some trades the standard times for the different operations are given rather than the standard time for the whole work. The trainee must therefore on the basis of the given standards work out how long the task will take him and determine the standard time for this job. This is only possible in trades such as plastering, where the time rate system is generally applied and officially recognised times for various operations exist. In such cases the trainee himself has to estimate the area to be covered; the figure so obtained must then be multiplied by the recognised time rates. In this way the trainee grows accustomed to the typical procedure in normal industry and while still being trained he gets an idea of the way in which his wages are fixed.

Photograph f

The setting of wire gauze also forms part of the training of plasterers

C. The Handling of the Worksheet

The trainee receives each new worksheet and drawing from the storekeeper. He first hands in his finished workpiece, the quality of which has been assessed by the instructor, and which bears the trainee's number. He also hands in his former worksheet, upon which the storekeeper stamps the ending time. The trainee now asks the storekeeper for the tools and the materials mentioned on the new worksheet or the drawing. The tools are issued in exchange for a "token"*, bearing the trainee's number. As the trainee is also financially responsible for these tools he makes sure that he receives the right ones and in this way he learns their names. The storekeeper has in this respect an

* by token is meant a piece of metal used in place of a coin.

ILLUSTRATION IX

The making of the shuttering for a lintel — PC - BE 10

	sequence of work - item number	addition
1	introduction	study drawing and worksheet
2	breaking down work	PC - BE 9 - clear away if necessary
3	selecting timber	make a timberlist - number, kind and length - in order of succession of making the shuttering - have it assessed - select timber
4	marking out a lath	for determining length of props of supports - take about 1½" for height of folding wedges
5	making supports	make one support first - props square and not too long - dogs (about 1¼" long) correct supporting - nail efficiently - take head long enough - pithside of head at the bottom - place props square-struts under 60° or more - have support assessed - maked other supports
6	making panels for beam	large panel runs past wall - narrow panel runs against wall - keep division clamps of panels same as division supports in connection with centre - distance at about 20" - keep clamps of narrow panel ¼" shorter on one side (smoothening concrete) on the other side clamps stick out in connection with suspending of panel
7	placing sole-pieces	well bearing - levelling
8	placing supports	ask assistance first support A - about 4" in the clear - props - on folding wedges - plumb - level and height mind the lower props -
	tools to be furnished:	spade - chopping knife - straight edge - sledge
	material to be furnished:	batten 2½" x 6½", rough - boards 7/8" x 4", 4 sides are planed - double ladder - pegs 2" x 3", rough

PC - BE 10

candidate nr

assessing by instructor

	−	+	substraction on account off	per − par	per +	end beginning
breaking down work	1	1				
measuring	1	1				
levelling	1	1				
plumbing	1	1				
straight work	1	1				
coupling and strutting	1	1				
wedging	1	1				
usefulness of shuttering	1	1				

total time worked ____ hours — standard time 11 hours

number of elements 8 — basic mark 10 — quality — speed — performance

VOCATIONAL TRAINING FOR ADULTS

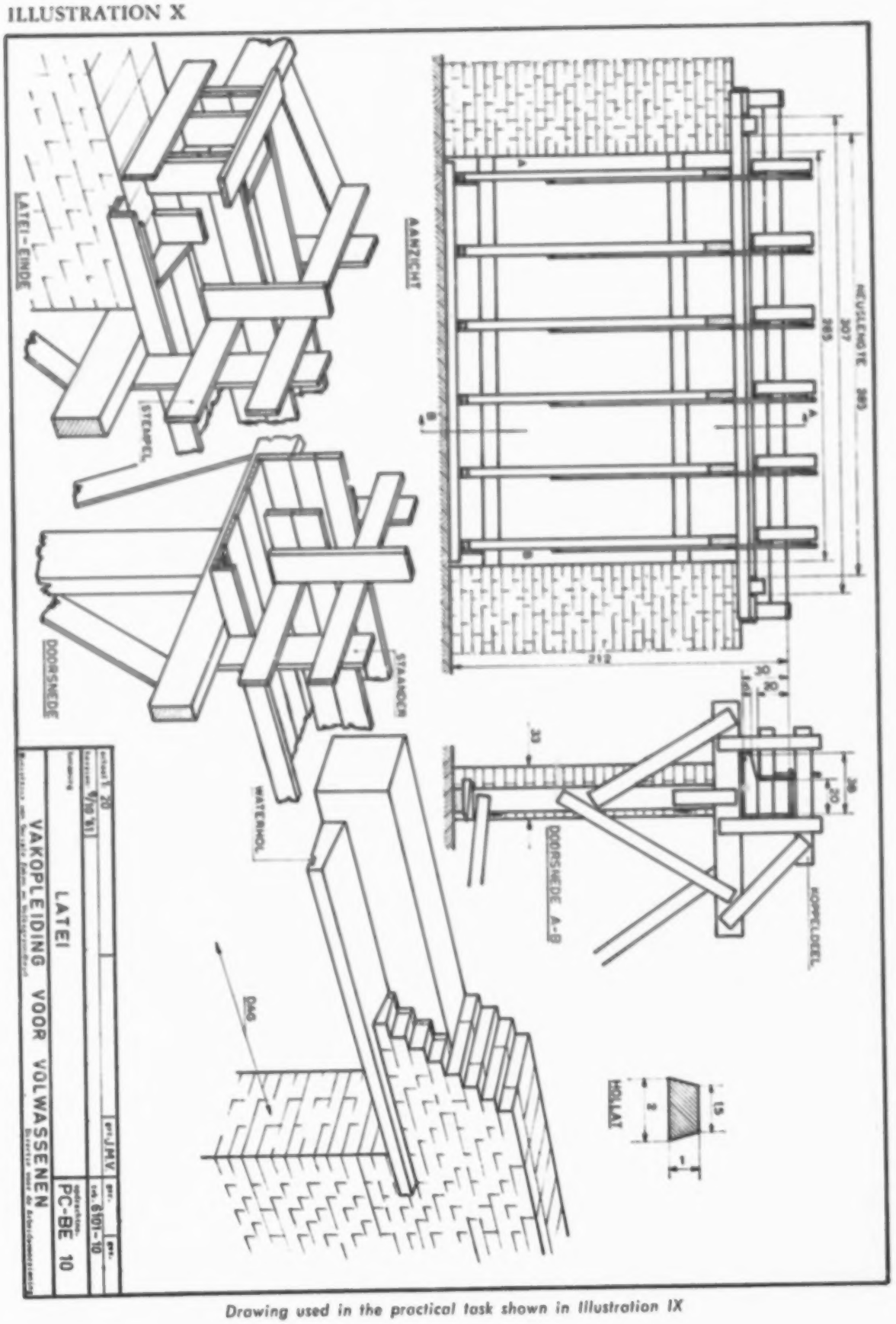
Ministry of Social Affairs and Public Health — National Employment Service

Example of a practical task taken from a building course (front page)

	sequence of work	addition	PC - BE 10
		place support B now - levell A and B - couple the heads - mark out the place of the other supports at about 20" entre - distance on couplingboard - place supports - on folding wedges - fasten under coupling - board - levell top of heads	
9	coupling supports	place coupling-boards, as high and as low as possible - adjust in the clear	
10	nailing folding wedges	through props into folding wedges - both sides	
11	placing bottom of lintel	in wall-opening - nose of lintel sticks out of the front - plane and place water drip - reiforcement can be placed now	
12	placing sides of beam	fasten nose-board and large panel to bottom of beam - place vertical boardsplumb - put narrow panel into formwork (attention) - place coupling-boards, about 31¼" free from top of lintel (smoothening concrete) - check distance (at top and bottem of lintel) between vertical boards - mark out place of clamps of narrow panel on coupling boards - hang panel (levelling) - strutting panel horizontal - plumb - struts about 1¼" higher than bottem of narrow panel (smoothening concrete) - stopp ends of nose with piece of board	
13	have assessed		
14	breaking down work	clean timber free of nails - clear away timber	

Example of a practical task taken from a building course (back of the page)

ILLUSTRATION X



Drawing used in the practical task shown in Illustration IX

ILLUSTRATION XI

parallel clamp — **PC - GB 29**

	sequence of work - item number		addition	
1	sawing-filing	1-2	saw all lengths approx. 1 mm longer as indicated - file flat, square and (except for levelled edges) on the correct size	
2	marking off-sawing - filing	1-2	mark off levelled edges of item numbers 1 and 2 - saw - file on the correct size - square and flat	
3	marking off - drilling	1-6	threaded holes	
4	drilling-tapping	1-2-6	copy holes for item no. 1 from item no. 2 - tap item 1 and 6 - attend to squarenesses	demonstration of copying holes
5	cutting screws - sawing	3-4-6	cut screws in item 3 and 4 - saw items number 3, 4 and 6	
6	filing	3-4-6	on correct size - square and flat	
7	assembling	3-4-5-6	screw up item number 3 and 6, 4 and 6 - mark off item 6 - drill-slightly countersink 3 mm hole - cut item 5 and clinch it into item 6	
	personal tools		12" bastard file - footrule - try square - mark scraper - 250 gr. bench hammer - centre punch - dividers - callipers - 24 t/inch metal saw - 10" smooth file - 8" semi bastard file	
	tools to be furnished		twist drills 3-3, 9-5-6, 5-8,5 mm - M 8 tap borer M 8 screweplatetwist iron - countersink drill - slide gauge	

candidate — nr. — **PC - GB 29**

assessing by instructor	—	+	subtraction on account off	per —	per	per +	end beginning
drilled holes 3-4-5 - correct diameter, position	1	1					
drilled holes 6,5 - 8,5 - correct position and diameter	1	1					
tapping and cutting screws - square and smooth	1	1					
measures - lengths of item nos. 3-4-6-7	1	1					
- length in assembled position item nos. 3-6 and 4 and 6	1	1					
- item no. 1	1	1					
- item no. 2	1	1					
- square and flat	1	1					
workmanship	1	1					

total time worked — hours — standard time 13 hours

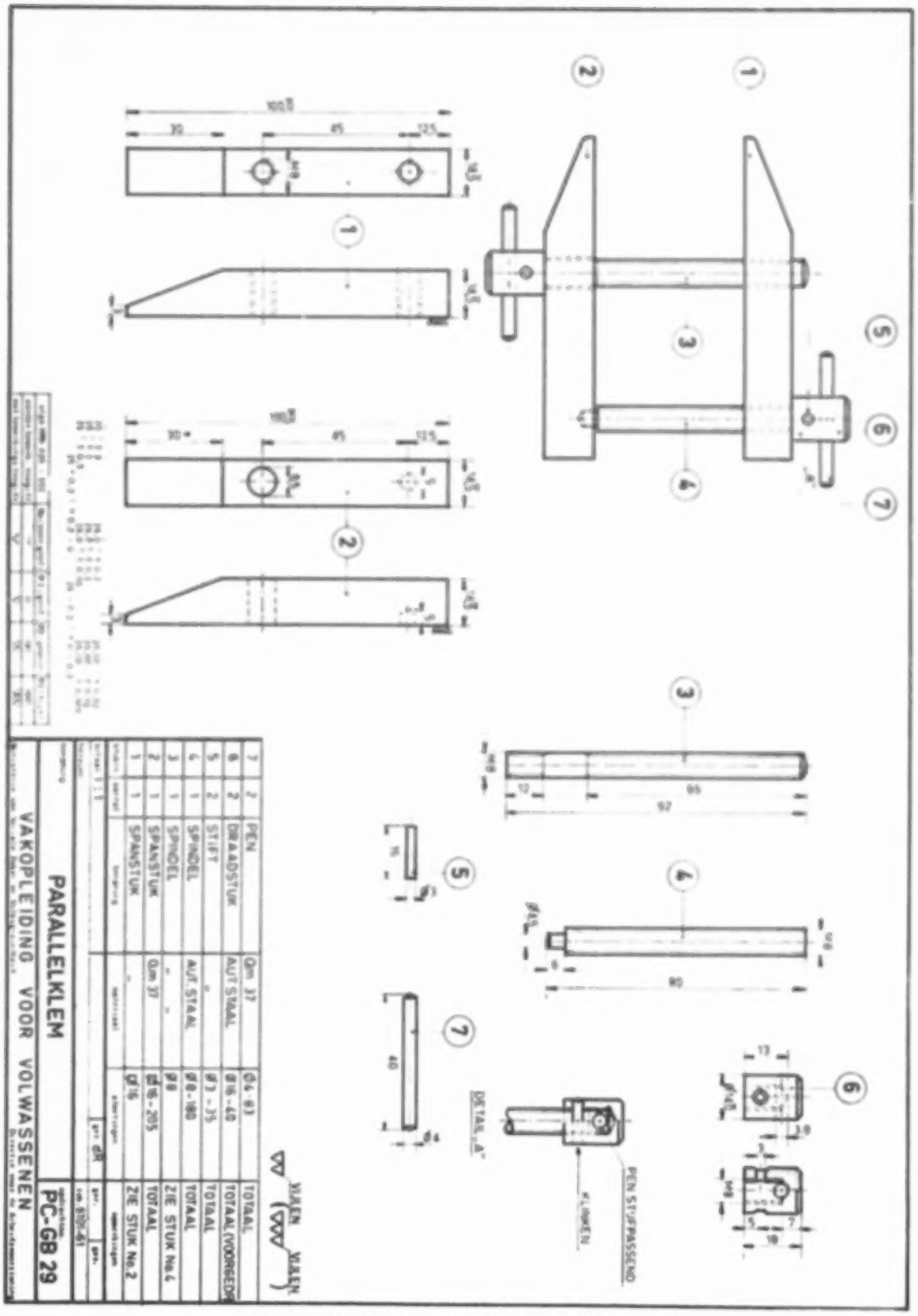
number of elements 9 — basic mark 10 — quality — speed — performance

VOCATIONAL TRAINING FOR ADULTS

Ministry of Social Affairs and Public Health — National Employment Service

Example of a practical task taken from a metalworking course

ILLUSTRATION XII



Drawing used in the practical task shown in Illustration XI

instructive task. When the storekeeper has stamped the starting time on the new worksheet and has also written the name and the number of the trainee on this sheet, the trainee goes to the appropriate workshop, lecture room or yard and starts working at his own speed. If he obtains a higher than average performance mark, he receives a performance bonus (see section F. of this chapter).

D. Assessing the Quality of the Workpiece

The instructor assesses the quality of each finished workpiece, whether it be practical or theoretical. It is not enough for him to make a rough estimate of the quality of the work as a whole: the quality of each separate part must be determined. This analytical quality assessment is necessary, not only because it is important to give

Photograph g

The store keeper is giving out materials and tools

well considered quality marks to the work as a whole, but mostly because the trainee should know on which particular points he has failed in meeting the required standard.

Some worksheets have more assessment points than others. These numbers tend to rise in proportion to the number of difficulties involved in the task. The simplest workpieces are assessed on four or five points; the most complex ones on ten to twelve.

The assessment is made in the presence of the trainee and using the measuring instruments the trainee used while carrying out the work. The figure 1 is printed on the worksheet in both the "minus" and "plus" columns opposite each point to be assessed, (see pages 48 and 51). If the result is very good, the figure 1 in the minus

column is crossed out, showing that for this point a "plus" mark has been scored. For work which qualifies neither as very good nor very bad, the figure 1 in both the plus and minus columns is crossed out. The evaluation "bad" is shown by deleting the figure 1 in the plus column. The figures remaining in both columns are added to ten (the basic figure). If the added plus'es and minus'es amount to 0, the quality mark is 10, indicating that the work has been done well. This mark cannot be qualified as excellent; it compares more or less with a mark of 7 or 8 obtained by the traditional method.

In the method described above equal importance is being given to all points of the assessment, so that less important parts of the work count the same as the more important ones. Considered superficially, it might be assumed that these figures could better be chosen in accordance with the importance of the various points of assessment. Less important or less difficult parts of the job would then, even if done exceptionally well, contribute less to a higher mark for quality than good results with more important or more difficult parts. More marks would then have to be deducted for a less difficult part which qualified as "bad". If this method were adopted, a greater variety of figures would appear in the plus and minus columns, illustrating the relation between the various difficulties of the operations concerned expressed by the various points of assessment.

However, experience has shown that it is almost impossible to establish the proper mutual relationship between these difficulties. Moreover, some parts of the workpiece - although not to be considered as the most difficult - do, in fact, determine the value of the whole workpiece. A beautifully made door, for example, is useless, if it is smaller than the stipulated size. If a system were used in which the various points were assessed differently, the quality mark awarded to such a workpiece would be very high. Clearly, the use of varying figures (higher than 1) for the various assessment points will give quite another picture, as to whether the difficulty of the work or the usefulness of the product is the criterion of the judgement. The most satisfactory results so far have therefore been obtained while maintaining the figure 1 in both the plus and minus columns for all assessment points.

When judging the trainee's work, the instructor points out to him where its quality does not come up to the requirements, or where quality has received attention to such a degree that the working speed has been influenced unfavourably. The instructor marks the mistakes on drawings and other theoretical work.

If a piece of practical work is awarded a quality mark lower than 7, the trainee has to perform the same task once again.

A piece of theoretical work awarded a quality mark of less than 7 need only be performed once again, if the understanding which the trainee will gain thereby is essential to his practical work.

E. Awarding the Marks for Working-speed and Performance

The clerical staff of the centre calculates the working speed mark as follows:

$$\frac{\text{time allowed}}{\text{time worked}} \times 100.$$

If this mark is lower than 70, the work piece must be performed once again.

The same staff also calculates the performance mark (quality mark times working speed mark).

When performance is measured in normal industry, the working speed is usually the dominant, if not the only factor. In the training centre the quality of the work naturally must also be taken into consideration when assessing the performance.

In normal industry an assessment of the quality of work is frequently limited to a decision as to which products are unusable; there are, therefore, only two possibilities: good or bad. Everything dubbed "bad" is rejected and is ignored when the worker's performance is judged.

This method, however, cannot be followed in a training centre.

When evaluating a trainee's performance, a much broader quality differential must be used. Of two identical workpieces for which the same working speed mark has been awarded, the one with the highest quality mark will also receive the highest performance mark. This will be an incentive for the trainees to improve their work and for their attention and enthusiasm. The trainee's attention is in the first place drawn to the quality of his work, thus avoiding a poor work performance.

Hence the performance mark for a work piece is determined at the training centres by multiplying the quality mark by the working speed mark. In this way average quality and working speed marks of 10 and 100 respectively will give a performance mark of 1000. Of course, this same performance mark can also be obtained from a lower quality and a higher working speed mark and vice versa.

Experience shows that performance marks as a rule fluctuate between 800 and 1200. With this method of calculating the performance mark trainees working less quickly can still obtain good performance marks, by devoting special attention to the quality of their work. Trainees who work at a high working speed but who are less accurate will also be able to gain good performance marks. This, however, does not allow them to lose sight of quality. For, after all, if a task receives a quality mark of less than 7, it has to be performed once again.

F. The Performance-premium

Over and above compensation for loss of earnings the trainee is paid a performance premium if his average performance mark for practical work has been over 949 for a week.

He receives a higher premium for average performance marks higher than 999 and the highest possible premium for average performance marks higher than 1099.

The premium is only paid if, during the same week, the average performance mark for theoretical work is above 700.

§ 4 THE DRAWING AND THE READING OF DRAWINGS

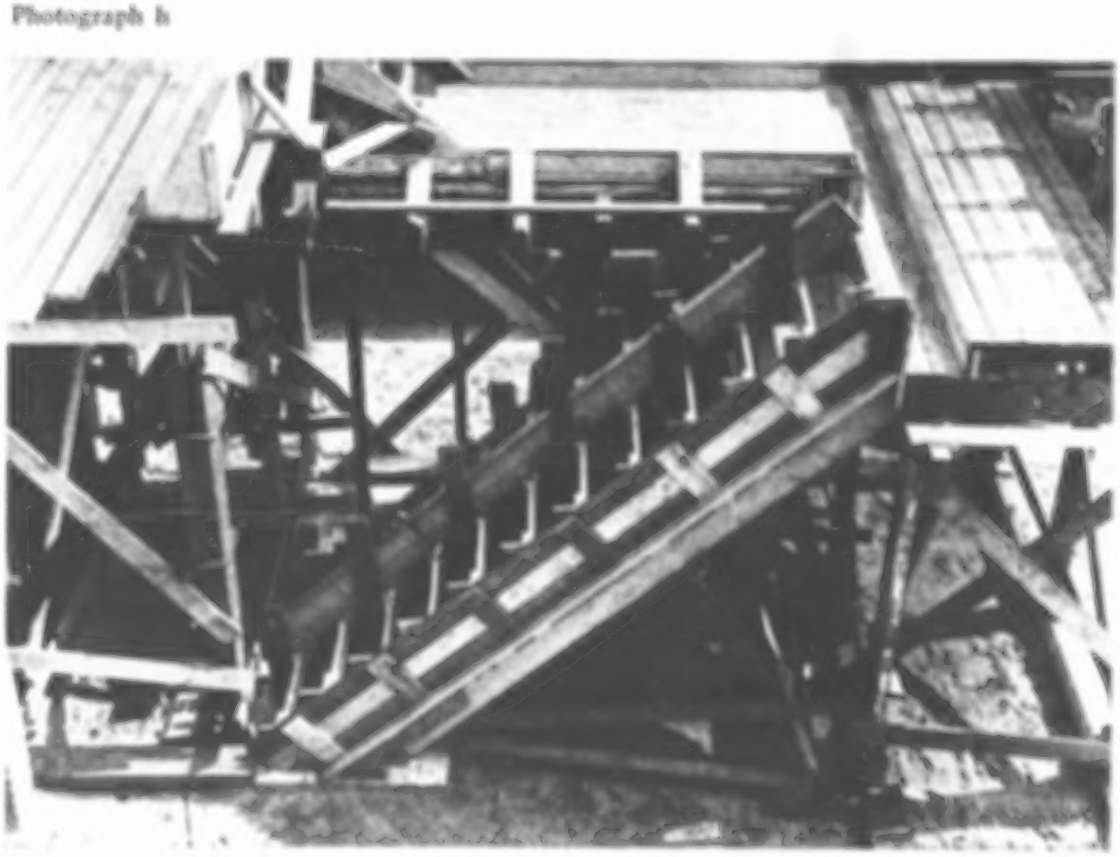
As it is impossible to describe every job adequately, most work orders must be supplemented by a drawing in order that the trainee may understand them properly. At first the drawing has an explanatory function. As the trainee proceeds, the directions on the work order become fewer and the task must more and more become evident from the drawing. This gradually accustoms the trainee to the practice in normal industry, where practically all the requirements to be fulfilled with respect to design, materials, and accuracy are specified on the drawing. Since industry is making increasing use of the American projection method alongside or instead of the European method, a growing number of drawings made according to the American method are being introduced in the vocational training of adults.

It was at first feared that confusion might result from the alternate use of both projection methods, but this fear has proved to be groundless.

At the start of the training, objects are shown on drawings in oblique projection. The perspective picture thus obtained gives the trainee an easier introduction to the reading of drawings. The oblique projection is sometimes used in industry too, for example for welding or concrete carpenting jobs.

In a few cases the worksheet is illustrated still further by a photograph. This is necessary when the workpiece is complicated. These photographs are also occasionally being used in industry in order to improve the constructive insight.

Photograph h



In some cases, as in this piece of concrete carpentry for a communal staircase, the work order must be supplemented by a photograph

All drawings belonging to the worksheets are made in accordance with Netherlands standardization papers; this gradually accustoms the trainee to the principles of standardization.

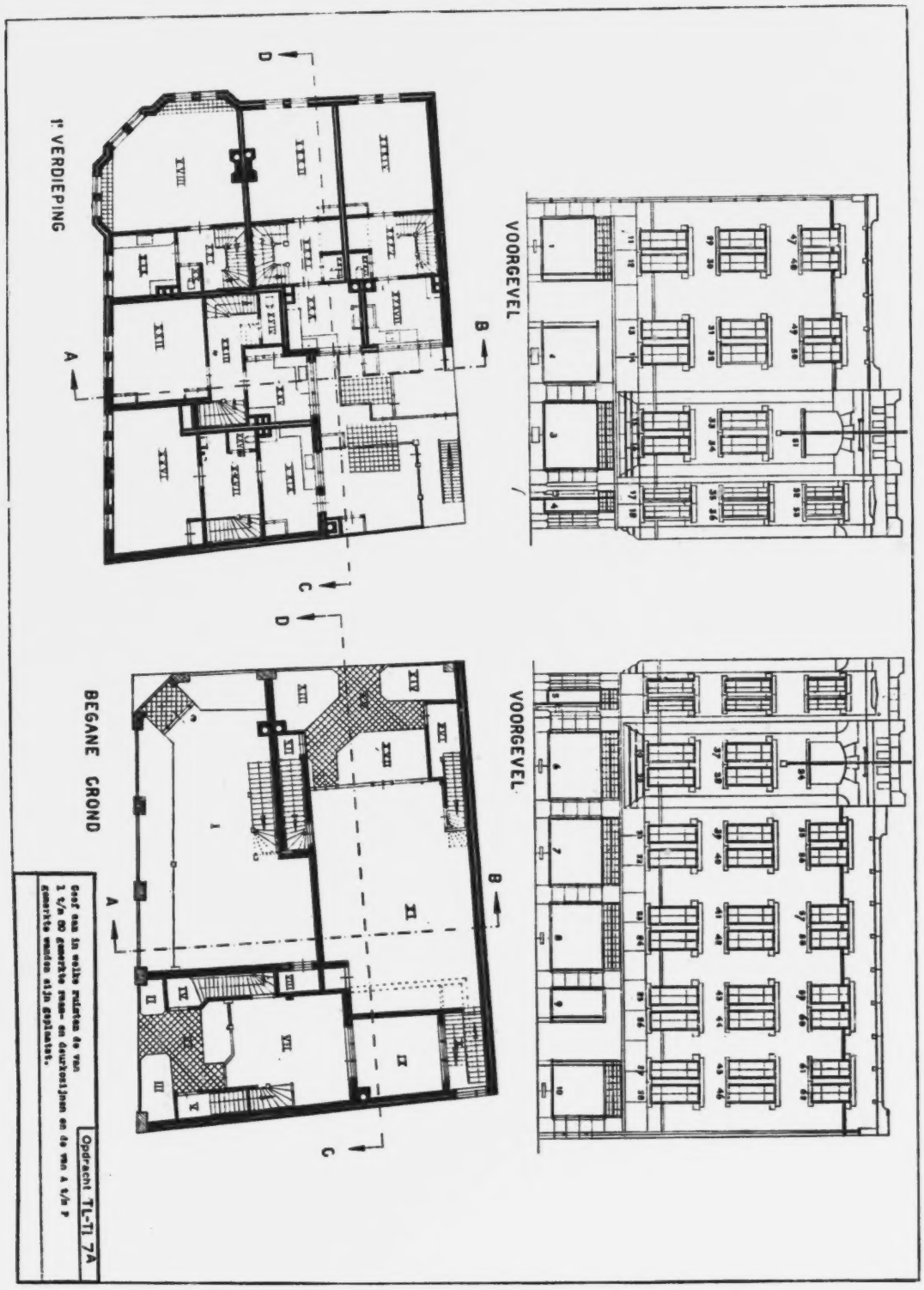
During the basic course the trainee is given fifteen worksheets which have especially been designed to familiarize him with the principles of projection. Taking care to adhere to the given measurements he must convert objects given in oblique projection into the European projection. The first eight of these work orders are given on pages 43 and 44. The trainee learns how to draw lines, which are not visible - dotted lines - (see TL-G 3 on page 43), how to solve the difficulties connected with oblique drawing (TL-G 4) and with out of scale drawing (TL-G 7 and TL-G 8).

Exercises in reading drawings are also given at a later stage of the training. Craftsmen always have to work with drawings which other people have made. It is, therefore, necessary to encourage the trainee to study a drawing, that is to fathom the aim and significance of drawings in all their aspects. For this purpose a number of drawings are included in the syllabuses which correspond in size, lay-out and drawing method to those used in industry. With the aid of these drawings, the trainee must record the components or the types of materials indicated in them. In the courses for the building trades this series consists of specification drawings showing the various component parts of a building (walls, frames etc.) indicated by letters and figures. The trainee must then state in which spaces these parts are located (see illustration XIII on page 38).

In the courses for metalwork the trainees have to look up the measurements and find out the materials with the aid of a list especially designed for each workpiece (see illustration XIV on page 59).

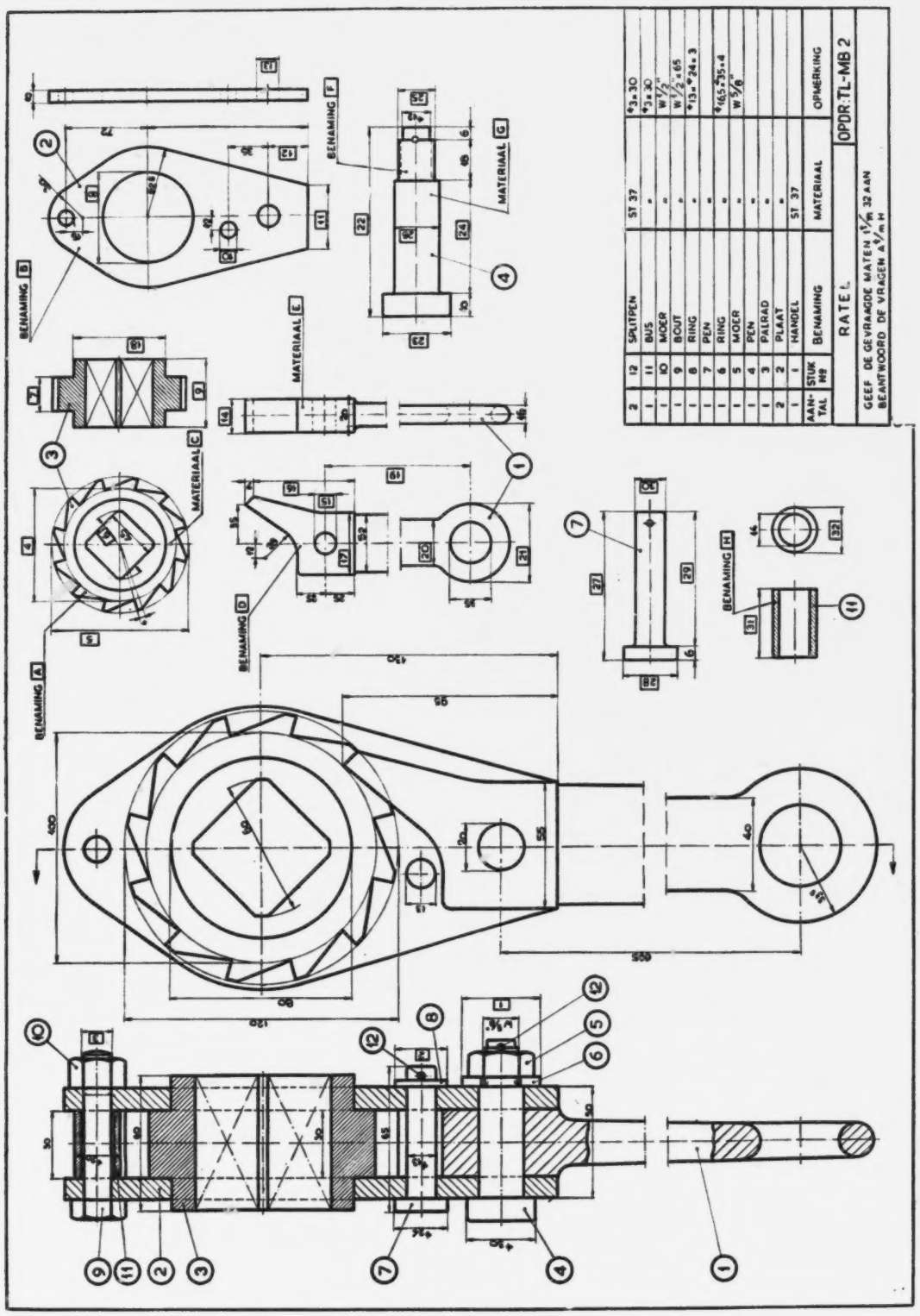
Another advantage of this method is that the trainee gets used to working with large drawings - which are often complicated - by which - especially at the beginning of the course - he is very much impressed.

ILLUSTRATION XIII



Theoretical task in which component parts must be listed from a specification drawing

ILLUSTRATION XIV


BENAMING A
BENAMING B
BENAMING C
BENAMING D
BENAMING F
BENAMING H
MATERIAAL E
MATERIAAL G
2 12 SPLITPEN ST 37 ø3x30
1 11 BUS " ø3x30
1 10 MOER " W1/2"
1 9 BOUT " W1/2x65
1 8 RING " ø13,5x24,3
1 7 PEN " ø165,5x5,4
1 6 RING " W5/8"
1 5 MOER "
1 4 PEN "
1 3 PAIRAD "
2 2 PLAAT "
1 1 HANDEL ST 37
AANTAL STUK Nº BENAMING MATERIAAL OPMERKING
RATEL OPDR:TL-MB 2
GEEF DE GEVRAAGDE MATEN IN mm 32 AAN
BEANTWOORD DE VRAGEN A t/m H

Theoretical task in which component parts, sizes and materials must be named from a drawing

§ 5 THE THEORETICAL TRAINING

The objects of the theoretical training are as follows:

(a) an essential brushing up of elementary school knowledge which has often been allowed to lapse;
(b) imparting such theoretical knowledge as will enable the trainee to perform the corresponding practical exercises and to have a better understanding of previous exercises;
(c) teaching the trainee the principles which are essential for a better understanding of the trade, teaching him the trade's special jargon and arousing his interest in further study, especially for the diploma of the apprenticeship system.

Re: (a) The elementary school knowledge is restored to the required level by paying attention to reading, writing and arithmetics. It is linked up as quickly as possible with the trade for which the trainee is being trained. The carpenter and the machine fitter have to solve quite different arithmetical problems. In this way, too close a similarity with elementary school education is avoided. As a result of the individual character of these tasks the trainee is prevented from comparing the theory room with an elementary school classroom.

Photograph i

A trainee in metalwork looking for missing measurements on a drawing

Re: (b) The trainee's understanding of theory is broadened by many exercises in drawing and the reading of drawings (see the preceding chapter). As the training proceeds, difficulties are worked into these exercises which are typical of the trade concerned. The carpentry course includes, for instance, the projection drawing of hip rafters and the projection drawing of the slopes of girders. The tasks for the machine fitter include: drawing a complete machine part, making out an inventory from a drawing, the details of which the trainee must first establish and answering questions about materials, operations, sizes, fittings and the names of component parts. The theoretical exercises are, of course, confined to material which schooling analyses have proved to be necessary.
In the theory room exercises are carried out in drawing, the reading of drawings, measuring, knowledge of materials, geometrical design and the drawing of letters by means of a stencil.

Re: (c) The theory is partly presented in the form of a few lines on some of the worksheets. When the instructor finds it convenient, e.g. in the case of unworkable weather, he may form a small group of trainees to deal with a single subject. He chooses the working aids himself and includes in the group only those trainees who have reached the appropriate stage of training.

§ 6 THE PERFORMANCE-SHEET AND THE CONTINUOUS SELECTION DURING THE TRAINING

Each trainee's quality marks, working speed marks and performance marks for all practical and theoretical tasks are recorded separately on his performance sheet (see illustration XV, page 64).

The performance sheet in this way shows how the trainee is progressing. Consistently high speed marks and comparatively low quality marks are characteristic of the fast but inaccurate worker. A preponderance of high quality marks and low speed marks may give a warning that the performance limit is being approached.

A rise in performance marks often indicates that the trainee's understanding and ability are developing during the course.

High performance marks for the practical work and low ones for the theoretical work, particularly at the beginning of the training, usually indicate diligence and some previous practical experience. Trainees with more than average education or some administrative experience usually gain higher performance marks for theory than for practice. Their greater verbal expression and experience of theoretical work are, however, usually offset by their unfamiliarity with manual work and with the workshop atmosphere.

The director of a vocational training centre, who by the nature of his function is unable to observe the trainees as closely as the instructor, should none the less follow each trainee's progress carefully. To this end he makes a daily study of the performance sheets.

If the performance marks show a clear decline, the director will consult with the instructor and the trainee to find means for improvement.

When a selection point is reached (see the training schemes on pages 37 and 38), the director discusses with the instructors and the trainee concerned which direction the next part of training should take.

It is of importance in this respect that the trainee should be convinced - also on the basis of the marks collected - that the most suitable continuation of the training is chosen for him.

The trainee who in spite of everything wishes to take up a trade which does not accord with his abilities must give up training before the termination of the course. He is certainly not allowed to be trained for a trade demanding a higher level of intelligence or greater physical exertion than the psycho-technical and medical examinations have shown him capable of (see also the "progress sheet", chapter I, § 6).

The trainee has the right to know the grounds on which the director has based his decision. This is particularly important if his performance indicates that his training must be discontinued. If a trainee entirely lacks the ability required for a particular trade, it is better for him to discontinue the training than to attend a course for which he is not suited and which cannot but lead to immediate disillusionment as soon as he takes up a job in normal industry.

ILLUSTRATION XV

PERFORMANCE-SHEET

Naam Cursist	Centrum Nr	Stam Nr	Aanvangsdatum	Afdeling
C Jongejan	21	3004	23-4-1962	Metaal

Opdracht Nr. Practijk	Opdracht Nr. Theorie	Eindtijd datum	Eindtijd uur	Gewerkte tijd	Verlet per opdracht	PRACTIJK Cijfer Kwal.	PRACTIJK Cijfer Tempo	PRACTIJK Cijfer Prest.	THEORIE Cijfer Kwal.	THEORIE Cijfer Tempo	THEORIE Cijfer Prest.	OPMERKINGEN Gem. prest. cijfer	
Pe-GB 28		25-5	9.8	3		7	83						a
Pe-GB 29		29-5	8.2	16		6	81						b
Pe-GB 29		31-5	9	18.4		10	71						
	TL-G 19	31-5	9.8	0.8					12	125	1500		
	PM-MB 8	31-5	10.7	0.7					11	86	946		
	VR-G 4	31-5	11.5	0.8					13	100	1300		
	TL-GR 14	31-5	12.2	0.7					12	114	1368		
Pe-GB 30		4-6	10.3	15.7		8	64						c
Pe-GB 31		6-6	9.2	16.7		9	72						
Pe-GB 30		8-6	8.6	17.-		7	71						d
	TL-G 20	8-6	10.9	2.1					13	90	1170		
	TL-GR 16	8-6	11.3	0.4					11	125	1375		
	TL-G 21	8-6	13.5	1.7					12	94	1128		
Pe-SM 5		8-6	15.5	2.-		12	100						
Pe-SM 6		11-6	7.7	1.7		11	88						
Pe-SM 7		11-6	9.4	1.7		13	94						
Pe-SM 8		11-6	13.6	3.5		10	114						
Na aan	odeel a	bespreking	o.	vergeboe		l	naar de	cursus		construc	ie	bank werkm	e
ME-LA 1		12-6	8.9	4.8		9	87	783					
ME-LE 1		13-6	10.3	10.-		10	92	920					
ME-LE 2		14-6	10.3	8.8		9	97	873					
	TL-G 22	14-6	11.1	0.8					11	75	825		
	TL-GR 17	14-6	12.-	0.9					12	111	1322		
	TL-G 23	14-6	14.1	1.6					6	75	450		
	TL-G 23	14-6	15.6	1.5					9	80	720		
	TL-G 24	14-6	17.-	1.4					11	93	1023		
ME-LA 2		15-6	10.7	3.-		10	93	930					
ME-LE 3		18-6	11.9	10.-		11	98	1078					
ME-LE 4		19-6	10.9	5.8		12	83	996					
ME-LE 5		19-6	13.9	2.5		9	112	1008					
	TL-G 25	19-6	15.6	1.7					13	100	1300		
	TL-G 26	19-6	16.3	0.7					10	86	860		

VOCATIONAL TRAINING FOR ADULTS

Example of a completed performance-sheet

An Explanation to the Use of the Performance Sheet

The practical and theoretical tasks are carried out in the prescribed order and as soon as each task is finished the results are entered on the performance sheet.

On May 25th, trainee Jongejan had been trained to be a machine fitter for about five weeks and had almost completed the basic course. For the practical work order PC-GB 28 (machine-fitting) he was awarded a quality mark of 7 (just satisfactory) and a working speed mark of 83 (satisfactory), see *a*

He had to do practical work order PC-GB 29 again, because his quality mark was too low (less than 7), see *b*

The practical work order PC-GB 30 was of satisfactory quality (mark 8), but this result was achieved at the expense of the working speed (mark 64), which was below the minimum allowable working speed mark (70), see *c*

While the clerical staff was still working out the working speed mark, the trainee meanwhile went on to the next work order, PC-GB 31. After that he had to do work order PC-GB 30 once again. This time he gained a satisfactory working speed mark (71) and his quality was just satisfactory (mark 7), see *d*

After the forging tasks, PC-SM 5-8 had been carried out, the basic course was completed, and the first selection point in the syllabus had been reached. See the training schedule on page 37.

When the director and the instructors discussed the course for which he should be selected, they considered that the trainee had done the forging work well, but obviously had difficulties in reaching the minimum standard quality for the more precise fitting work, while maintaining a sufficient working speed.

The trainee was informed that he was considered more suitable for the constructional iron work fitter's syllabus than for the machine fitter's syllabus. The trainee agreed, see *e*

His further progress proves that he performed the "electric welding tasks (ME-LE)" well.

§ 7 THE TASK OF THE DIRECTOR OF A VOCATIONAL TRAINING CENTRE

The director of a centre is administratively subordinate to the Chief Inspector-Director of the National Employment Service for the province concerned (abbreviation in Dutch: H.I.D.).

As far as the training itself is concerned, the director of the centre is subordinate to the Director of the State Labour Office (Head of the Vocational Training Department). Depending on the size of the centre, the staff consists of:

1 director,
3–12 workshop instructors,
1– 3 instructors in theoretical subjects,
1– 4 clerical staff,
1– 4 stores staff.

The director must see to it, that the buildings and yards are used efficiently in view of the changing number of trainees. He is responsible for the efficient ordering of tools and materials. He endeavours to arrange that the courses progress as smoothly as possible, especially under adverse circumstances, for example, when the weather is bad, the machinery breaks down or a member of the staff is ill.

The director has to form himself as complete a picture as possible of each trainee on the basis of:

(a) the quality-, working speed- and performance-marks on the performance sheet;
(b) the personal impression gained by the instructors of both theory and practical work and
(c) his own regular re-evaluation of the work.

In addition, the director decides, when the basic course has been completed as well as at each subsequent selection point (see the training schemes) whether the trainee is suitable for further training and, if so, which direction this further training should take. This continuous selection demands the director's constant attention.

On the basis of all data available and through his acquaintance with the trainee, the director is in a position to judge the trainee's capabilities, enabling him to inform the placement officer of the employment office accordingly.

A few times a year the director holds an evening-consulting hour for ex-trainees. On these occasions he advises them as regards their possibilities for further study and training. The director also collects the data necessary to fix the dates on which ex-trainees may go in for an examination which is held at the training centre about one year after the completion of their training. The trainees who pass this examination are awarded a certificate

The director of a centre is aided by an advisory committee. It consists of a chairman who is an expert in the field of vocational training, and a few other members representing employer's and worker's organizations, preferably on an equal basis. Experts in the field of the building or metal trade or in the field of vocational training should be amongst them.

The director keeps in regular contact with the district employment offices, which

refer new trainees to the centres and find a job for them in industry when their training has been completed.

The director is in charge of all important correspondence.

§ 8 THE TASK OF THE INSTRUCTOR FOR PRACTICAL WORK

The instructor for practical work controls one of the workshops of a vocational training centre. He gives the practical instruction in this department for both indoor and outdoor work in one or sometimes two (related) trades - for example, carpentry and/or concrete carpentry, constructional ironwork fitting and/or welding, machine fitting and/or turning, precision fitting and/or turning.

The instructor for practical work must, of course, be a craftsman in the trade concerned.

For some trades outdoor work forms an important part of the training (concrete carpenting, constructional ironwork fitting, bricklaying), whereas in other courses it forms no part at all (turner, electrician, plasterer, motorcar mechanic, precision fitter and welder).

The instructor for practical work gives guidance to a varying number of trainees, the maximum number differing for the various courses (12 motorcar mechanics, 25 bricklayers).

Photograph j

An instructor in motorcar-repairing is supervising the work

The basic knowledge of the trainees varies considerably. They carry out the various tasks at their own - different - work speed. They may start a course at any day. This demands from the instructor great attention, which must, however, be divided between several trainees. Either when he thinks it necessary or at the request of the trainee he gives such explanation or guidance as is needed for the proper understanding and the accurate execution of each task.

The instructor assesses each finished workpiece with the same measuring instruments which the trainee has used and along the lines, indicated by the work sheet. These are by the nature of things different for each task. He then decides on the quality mark, which determines whether the task must be repeated or whether the next task can be started.

From time to time the instructor forms a group of trainees to discuss a special aspect of the trade or a particular aspect of safety. To this end he chooses a moment which he considers most appropriate in view of the progress which the trainees have made.

The instructor sees to it that the machinery, the instruments, the tools and materials are available in the right numbers and the right condition, in order that the training can proceed without interruption.

Whenever circumstances lead to a disturbance, for example an equipment breakdown or unworkable weather, the instructor endeavours to keep the training going as well as possible, if necessary by changing the sequence of the tasks. He also sees to it, that the trainees complete the preliminary exercises in working technique in good time, and that they always follow the safety regulations (by wearing safety clothing, safety goggles, keeping gangways free etc.).

Photograph k

The instructor in streetpaving is giving instructions

The conditions of work during the training tally as far as possible with those in industry (workshop discipline, safety, lighting and heating). It is considered educationally valuable to pay the greatest possible attention to the safety.

The instructor in practical work must always have a clear picture of the mental attitude of each trainee and the proficiency which he has acquired. The instructor is then able to take account of all factors which can influence further training and discuss them with the training inspectors and the director. If so required, he advises the director at each selection point on the suitability of the trainee for further training and the direction which the training should take. This advice is particularly valuable to a director who is not a specialist in the specific trade.

§ 9 THE TASK OF THE INSTRUCTOR IN THEORETICAL SUBJECTS

The instructor in theoretical subjects is in charge of the theory department of a vocationa! training centre. At a large centre this will be either for the theory of building trades or metal-trades.

He directs the work of a constantly changing number of trainees (up to thirty). The average number depends on the total number of trainees, which changes from season to season and from year to year. The basic knowledge of these trainees varies a great deal. They all work at different tasks (calculating, reading drawings, sketching, making geometrical designs, drawing, making projections, drawing letters by means of a stencil, measuring, answering questions about their particular trade, studying the knowledge of materials). The trainees work at their own speed.

Unlike the instructor in practical work, the instructor in theoretical subjects need not be a specialist tradesman, but his general knowledge must be more extensive.

The director and his deputy (one of the instructors) should be specialists in different branches (building or metal-trades).

It is desirable that as much as possible of the knowledge relating to a trade should be taught by the instructor in practical work, as he is in a better position than the instructor in theory to explain such matters. The extent to which this "theory" can be switched from the theory room to the workshop is, however, limited by:

(a) the surroundings: the workshop is sometimes too dusty, too noisy or there is insufficient lighting to be an adaquate environment for these lessons;
(b) the number of trainees who can be trained at the same time. It should be noted that this number is smallest for exactly those trades which require the most comprehensive specialized knowledge (e.g. motorcar mechanic and precision fitter).

It might be considered useful to keep the number of trainees in the theory room more uniform by using the lecture room only at fixed hours.

This would, however, involve a less efficient use being made of the equipment and it would interfere with the continuous carrying out of practical tasks.

The theory room must, therefore, be in use continuously.

Experience has shown that the instructor in theoretical subjects must provide more advice, help and explanation than the instructor in practical work. He must also deal carefully and accurately with a larger number of different subjects in succession. Moreover, the vast majority of the trainees are more practical-minded and often have to adjust themselves considerably to absorbing the essential theoretical material.

The theoretical part of the training consists of written tasks. Each work sheet records, where necessary, the sequence in which the work should be done and the points to which the trainee should pay special attention. However, the theory instructor as well as the instructor for practical work gives such advice and explanation to the trainees as is necessary for them to carry out each task intelligently. The instructor in theoretical subjects also gives the director any advice he may require at a selection point, either as to the trainee's suitability for further training or as to the direction which this further training should take. He must keep an eye on the way in

Photograph 1

The instructor in theoretical subjects is explaining a task to a trainee

which each theoretical task is developing so that, on his own initiative or on request, he may suggest improvements with regard to the training or the equipment used for it.

The tasks or even whole syllabuses, are constantly being changed by the vocational training department. The instructor must continually adapt himself to these changes.

The instructor in theoretical subjects must keep himself abreast of developments in the special subject-matter relating to the various trades. This will enable him as far as possible to answer any questions on theory that arise, without having to refer the trainees to the instructor in practical work.

§ 10 THE TASK OF THE TRAINING INSPECTOR

Attached to the vocational training department are one training inspector for the metal courses and one for the building courses.

These inspectors are in charge of inspecting the courses daily. They check the way in which the directives sent out in circulars are being followed and the general lines which the training is taking.

Their task is as follows:

- to make their own assessment of the finished work (the finished work is kept intact for this purpose);
- to check the manner in which the continuous selection of the trainees during the training is functioning with the help of the performance sheet;
- to give technical advice to the directors and instructors of the vocational training centres both during the courses and when new tasks are to be introduced; this advice is given at the request of the staff or of the head of the vocational training centre and if the inspectors consider it necessary;
- to assist the directors of the centres in the training of new instructors;
- to submit reports to the head of the vocational training department;
- to advise the head of the vocational training department on the following matters:
  - the desirability of changing the worksheets;
  - the technical and teaching ability and aptitude of the instructors in connection with their permanent employment, detachment, transfer or promotion;
  - arranging and re-arranging the lay-out in the buildings and the yards of the centres;
  - maintaining the equipment at a sufficiently high level of efficiency for training; and
  - safe working conditions;
- assisting in the holding of examinations, public lectures, the opening of new centres and in the maintenance of contacts with representatives of the apprenticeship systems and other training institutions (agricultural training centres etc.) and with the Safety Institute.

In their weekly reports the training inspectors not only report about their findings with regard to their assessment but also about factors which are of importance to:

- the degree of difficulty of the tasks;
- the continuous selection of the trainees during the courses;
- safety;
- discipline in the buildings and yards;
- care of the tools;
- the attitude of the staff;
- the attitude of the trainees;
- the circumstances which, in the inspector's opinion, influence the training either favourably or unfavourably, such as the condition of the buildings and yards, the operational condition of the machinery, the weather and the frequency with which the staff and trainees fall ill.

§ 11 THE ADAPTATION OF THE TRAINEE TO INDUSTRIAL CONDITIONS AND TO HIS NEW TRADE

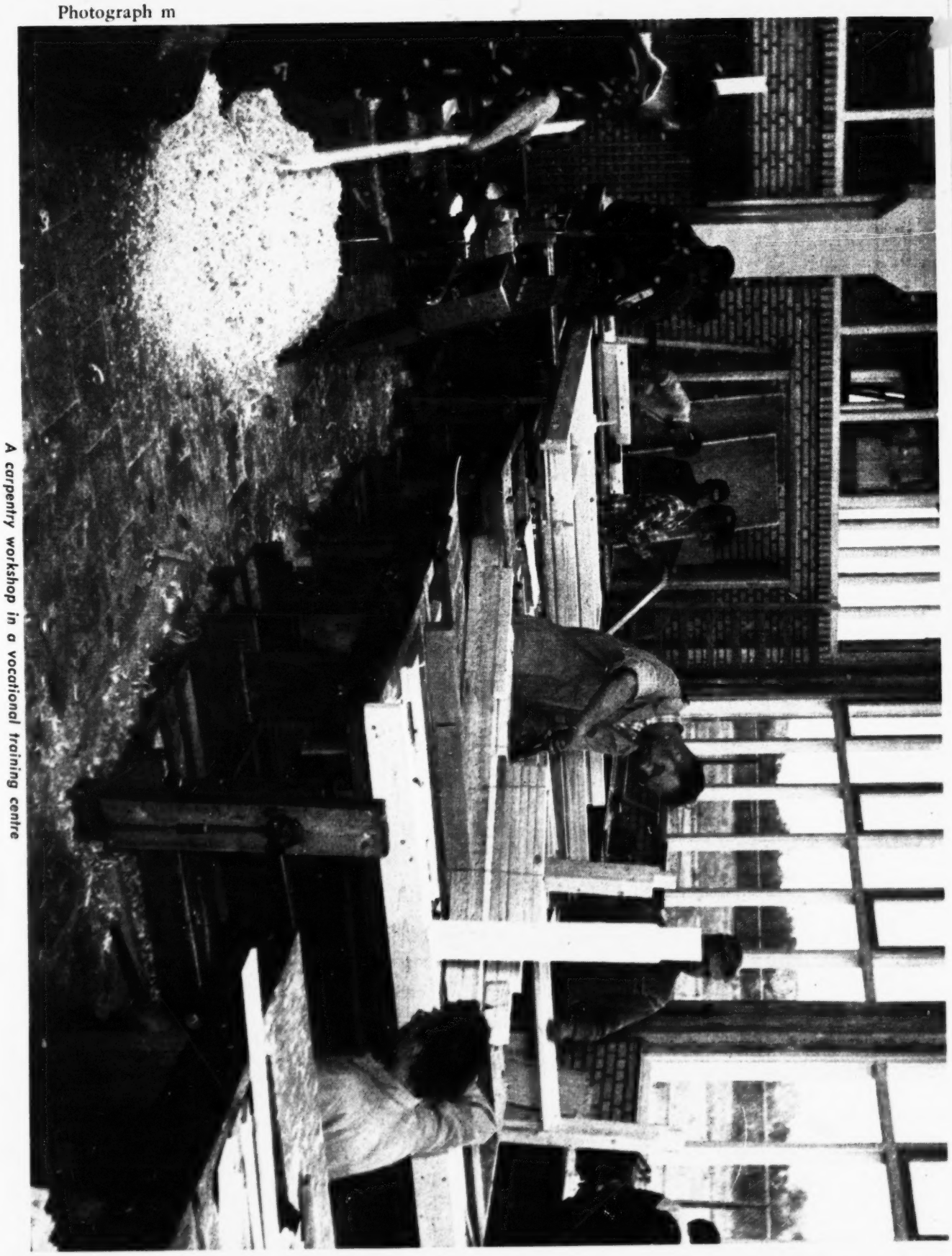
The new work undertaken after the completion of training means a considerable change for many trainees, especially the older ones. An agricultural worker, an office clerk or a transport worker, who trains for a trade in the building or metalworking industries not only has to acquire the proficiency and knowledge required for that trade, but must also learn to adapt himself to the atmosphere of his new trade, to the new colleagues and to the specific trade rules. To make the transition easier, this aspect receives as much attention as possible during the training. The working atmosphere in these centres should therefore approach that of normal industry as closely as possible.

To this end the following methods are applied:

- giving individual training, which encourages the trainee to use his own initiative;
- keeping work orders in line with the conditions in normal industry;
- making the hours of work similar to those in normal industry;
- carrying out all work orders within a fixed time; the starting and completion times being marked by the time clock;
- granting a performance bonus at the end of a week, if the quality and the working speed in that week have been above average;
- lowering the performance mark, if the required standards of safety, discipline or neatness have been disregarded or if insufficient care has been taken of the tools;
- the check on attendance;
- the issue of tools after the handing over of a "token";
- the wearing of the prescribed safety clothing and -goggles;
- the indication of points which are dangerous or need care by means of the prescribed safety colours;
- the marking of pipes and cables with the standard colours;
- the indication of passages in the workshop by yellow lines.

There is an arrangement under which trainees - during their training and depending on the duration of this training - can be employed in a factory for 2 to 4 periods of about 8 working days each, if the work to be performed corresponds with the degree of skill already obtained. This arrangement also provides the opportunity for the trainee to grow accustomed to the working atmosphere and to familiarize themselves with the type of men with whom they will have to work later on. During this period many trainees overcome a certain diffidence as a result of which they continue their training with greater confidence.

Photograph m



A carpentry workshop in a vocational training centre

§ 12 ALLOWANCES PAID TO TRAINEES

To make it financially possible for the trainees to follow a vocational training course, they are paid compensation for loss of earnings. This allowance is paid weekly. For married men of twenty-three and over it is about 90 % of the basic wage for unskilled workers. Single men of twenty-three and over receive 12½ % or 25 % less, depending on whether they live on their own or at home with their parents. Trainees under twenty-three are paid 10 % less for every year below that age.

The trainee is given a chance of earning a performance premium as an extra incentive to complete the course as satisfactorily and as quickly as possible (see page 55, sub F).

The family allowance is paid in accordance with the provisions of the Family Allowance Act for Wage Earners and the General Family Allowance Act.

The Minister of Social Affairs and Public Health has drawn up compensatory measures in respect of sickness and accidents.

Trainees who live three miles or more from the vocational training centre may receive a travelling allowance or an allowance for the use of their bicycles.

Trainees whose essential travelling time amounts to more than two hours per day receive an allowance for the travelling time in excess of these two hours up to a maximum of one hour.

Where necessary, a compensation is paid for the costs of board and lodging.

§ 13 THE PLACEMENT OF THE TRAINEE WHO COMPLETED HIS TRAINING

Finding employment for the man who finished his training is the task of the district employment offices. The placement officer for the metal trades tries to find a job for the metalworker; the placement officer for the building trades does the same for the building worker. In this way the trainee can be assured that he is assisted by a functionary who has a thorough knowledge of industrial establishments, the atmosphere prevailing in them and the demands required.

Before the trainee has completed his training, a few discussions take place between the trainee, the placement officer and the director of the centre. The possibilities of finding employment for the trainee are discussed on these occasions in accordance with his own wish and the director's opinion of his ability.

The placement officer then tries to find a suitable job for the trainee.

§ 14 FOLLOW-UP AND EXAMINATIONS

Every effort is made to ensure that the trainee can make the best use of the skill acquired during the training. It is emphasized to him, amongst others, by the placement officer during their interview that the knowledge which has been acquired, must be supplemented. The trainee is, therefore, advised to study for an examination held under one of the national apprenticeship systems. Many trainees, after a certain amount of extra study, appeared to be able to pass these examinations with succes.

There will, nevertheless, still be trainees, who cannot or will not go in for an examination held under the apprenticeship system, for reasons of age for example. These trainees are given the opportunity of taking part in the examination held by the vocational training centre. This examination takes place when the trainee has been working at his new trade for about a year.

The examination papers are set by the vocational training department in consultation with organized industry. The examination lasts three to five days, during which time the candidate receives compensation for loss of earnings. If he passes, he is awarded a certificate.

To find out how the ex-trainee is adapting himself to his new trade the District Employment Office invites him to an evening interview about three months after the completion of his course. His working conditions are then discussed with him. When necessary, the employer is contacted afterwards; difficulties may then either be solved or avoided.

About six months after the completion of his course, the ex-trainee is invited to an evening interview by the director of the centre in which he followed his training. This interview takes place either at a centre or at an employment office near the trainee's home. The director then discusses with the ex-trainee the latter's technical experience, the possibility of broadening his knowledge of his trade and of his taking an examination at a training centre or of one of the apprenticeship systems.

If it is considered desirable for the ex-trainee's further development that he be found other work, the director of the centre refers to the director of the employment office concerned.

The follow-up work is continued until it can reasonably be assumed that the process of adaptation has been completed.

Chapter VI. CO-OPERATION BETWEEN THE GOVERNMENT AND TRADE AND INDUSTRY

A great deal of attention is paid to the co-operation between the government and trade and industry with respect to the vocational training for adults, in order to ensure that the range and content of vocational training is continually adapted to the ever changing conditions and technical requirements of normal industry. As a result of this co-operation, industry is also able to form a good idea of the current value of the vocational training for adults. This helps in maintaining the good reputation of this type of vocational training and improves the chances of finding jobs for the trainees, the availability of jobs partly depending on this reputation.

The National Advisory Committee to the State Labour Office, which is composed of Employers' and Workers' representatives and experts, gives advice on matters of general policy. Through this Committee, organized industry makes known its views on the extent of training, on the number of trainees who, in view of the general situation of the labour market, should be trained each year, on the trades for which training should be given and to what extent. As organized industry is kept informed about the results of training, it is always in a position to form an opinion about the importance of this training.

The National Advisory Committee to the State Labour Office has appointed a Subcommittee on vocational training which is composed of experts representing industry, employers and workers. This subcommittee makes recommendations regarding the subject-matter of the courses and other matters which have a bearing on the work of the vocational training department. The head of this department discusses with the members of this subcommittee the results of the training analyses and the most important revisions made to the course.

The Committee meets four to five times a year.

There is a great deal of consultation with organized industry when a training analysis is being carried out.

The director of a vocational training centre is aided by a regional advisory committee. These committees may give advice on all training matters. In setting up these committees, the participation is sought of experts from the various trades, for which training possibilities exist, attention being given to the equal representation of both employers and workers in the committee. When the recommendations of these regional committees have no bearing on typically local or regional affairs, they are submitted to the above-mentioned sub-committee on vocational training.

The contents of the courses which are centrally fixed for the various trades, cannot be changed locally. The local committees sometimes recommend that the contents of a course be modified in line with certain regional variations or local practices which occur in some branches of a trade and are applied by organized industry in that particular area.

The practicability of putting these recommendations into effect is examined centrally. In the first place care must be taken to ensure that the training is not made too restricted. The trainee's position will then be too much liable to economic fluctuations. Moreover, the ability of the trainee to take up a job in another area is becoming more important all the time.

The members of the regional committees also form part of the examining board.

They take part in the invigilation and the judging of the examination work and give their advice as to whether a certificate should be awarded.

This co-operation between the Government and organized industry is of benefit to both sides. The Government keeps in touch with the local wishes and requirements of industry, while industry is kept completely informed as to the action the Government is taking with regard to the training.

Chapter VII. CONSULTATION WITH OTHER COUNTRIES AND THE EXCHANGE OF INFORMATION

The developing countries with their increasing industrialization have a great need for the experience which developed countries have acquired in the field of vocational training, especially for adults.

At the same time, the Organization for Economic Co-operation and Development (O.E.C.D.), the European Economic Community (E.E.C.) and the European Coal and Steel Community (E.C.S.C.) are increasingly urging their member countries to bring the training standards for the various trades into line. The inevitable exchange of workers may then be carried out as efficiently as possible.

Under the auspices of the International Labour Office (I.L.O.), the O.E.C.D. and the E.E.C. annual meetings take place between vocational training experts of the member countries of these organizations, during which all aspects of vocational training for adults are discussed.

In January, 1961, the Council of Europe and the I.L.O., in co-operation with the O.E.C.D., established a Centre for information and research in the field of vocational training (C.I.R.F.).

The task of this Centre includes:

1. collecting documentation on vocational training, especially on organization, administration and training programmes;
2. providing information about the latest developments in the field of vocational training, both at the request of a particular country and by bringing out publications in English and French destined for use in all countries;
3. carrying out research into the methods and appliances being used in vocational training, and publishing reports and manuals;
4. directing or co-ordinating research in the field of vocational training at a national level.

Increasing use is being made of the opportunity to obtain organization schemes, syllabuses and other information direct from other countries.

This is done both by correspondence and by personal contact with experts from other countries. In 1961 the Netherlands Ministry of Social Affairs and Public Health gave written information, some of it very detailed, to seven countries.

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